Appendix 8

2006 Annual Groundwater Monitoring Report

REPORT
2006 ANNUAL GROUNDWATER MONITORING
FORMER SQUARE D COMPANY FACILITY
1060 EAST THIRD STREET
BEAUMONT, CALIFORNIA
FOR SQUARE D COMPANY

URS JOB NO. 29864170
FEBRUARY 27, 2007

2020 EAST FIRST STREET, SUITE 400, SANTA ANA, CALIFORNIA 92705
(714) 835-6886, FAX (714) 667-7147

EXECUTIVE SUMMARY

This annual report summarizes the results of groundwater monitoring conducted in 2006 at the former Square D Company facility in Beaumont, California. The groundwater monitoring program is intended to monitor groundwater quality beneath the North Post-Closure Area (NPCA), the regulated closed unit at the site, under Hazardous Waste Facility Post-Closure Permit Number 97-SC-001, expiration April 30, 2008. Groundwater elevation data collected as part of the monitoring program are used to evaluate groundwater flow direction beneath the site. Groundwater analytical data collected as part of the monitoring program are used to assess concentration changes in groundwater constituents.

In accordance with the February 24, 2003 *Water Quality Sampling and Analysis Plan* (WQSAP; URS, 2003), the 2006 monitoring entailed annual analysis for field parameters, measurement of groundwater elevations, and collection and chemical analysis of groundwater samples for groundwater monitoring parameters and constituents of concern from six monitoring wells: background Well Y-3 and downgradient Wells Y-7, SDB-1, SDB-4, SDB-5, and SDB-6B. The annual monitoring occurred September 27 and 28, 2006.

The results of the 2006 groundwater monitoring conducted at the former Square D facility in Beaumont, California, can be summarized as follows:

- Groundwater elevations in September 2006 remained consistent with historical data. Groundwater elevation data obtained from the site indicate a northerly flow direction, consistent with the findings from 1993 through 2005.

- The average groundwater gradient was estimated to be 0.040 foot per foot (ft/ft), consistent with historical data. The vertical gradient between Wells SDB-5 and Y-7 was calculated to be 0.061 ft/ft, with the gradient directed upwards, while the vertical gradient between Wells Y-2 and Y-7 was 0.041 ft/ft, with the gradient directed downwards. These vertical gradients are consistent with the data from the past 13 years. Numerous investigations at the site have shown the first water-bearing zone is composed of relatively thin, semi-permeable silty sand stringers imbedded in a fine-grained clayey silt; thus, it is plausible that Wells SDB-5 and Y-2 are screened within different sandy stringers in the aquifer that have different hydraulic heads.

- In 2006, the calculated groundwater flow rate ranged from approximately 0.24 feet per year (ft/yr) in Well Y-7 to 15 ft/yr in Well SDB-5, and the calculated groundwater linear velocity ranged between 1.2 and 76 ft/yr. These flow rates and velocities are consistent with the findings from 1993 through 2005.

- Comparison of the September 2006 analytical data from the NPCA point-of-compliance wells with the background well includes total chromium, Cr^{VI}, hardness, specific conductance, sulfate, and TDS. Concentrations of these constituents have remained relatively steady in the downgradient wells. Well SDB-1 experienced increasing concentrations of these monitoring parameters from 1993 to 1998; however, none of the concentration limits established for the Post-Closure Permit were exceeded. For the past nine years (1998 through 2006), concentrations of the monitoring parameters in Well SDB-1 have generally stabilized, with only a few fluctuations (e.g., hardness in 2002 and 2004, and TDS in 2002 and 2005). Well SDB-6B also experienced slight increases in hardness, specific conductance, and TDS between 1997 and 2006, but the levels are well below the concentration limits established for this lateral downgradient assessment well.

- During the 2006 annual sampling event, phosphorous, a constituent of concern, was detected above the phosphorous notification level of 0.3 mg/L in vertical downgradient Well Y-7 at a concentration of 3.5 mg/L. Phosphorous was not detected above the laboratory reporting limit of 0.10 mg/L in the five shallower wells at the site. The source of the phosphorous in this deeper well is unclear, but does not appear to be associated with a release at the Site. In 2005, low levels of phosphorous were detected across the site in both upgradient and downgradient wells suggesting that the presence of phosphorous in the groundwater appears to be a regional issue.

The analytical data obtained during the 2006 sampling event for point-of-compliance Wells SDB-1, SDB-4, SDB-5, SDB-6B, and Y-7, and background Well Y-3 were below the concentration limits and notification levels established in the WQSAP for the Post-Closure Permit, except for phosphorous in the vertical downgradient well, Y-7. In response to this notification level exceedence, Square D plans to continue monitoring the phosphorous concentrations in the wells in 2007 rather than waiting until the next scheduled sampling event for phosphorous in 2008. If phosphorous is detected next year above the notification level of 0.3 mg/L in both the upgradient and downgradient wells, Square D may recommend modifying the notification level.

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1.0 INTRODUCTION

This annual report summarizes the results of groundwater monitoring conducted during 2006 at the former Square D Company (Square D) facility located at 1060 East 3rd Street in Beaumont, California (Figure 1). The groundwater monitoring program is intended to monitor groundwater quality beneath the North Post-Closure Area (NPCA; Figure 2), the regulated closed unit at the site, under Hazardous Waste Facility Post-Closure Permit Number 97-SC-001, expiration April 30, 2008. Groundwater elevation data collected as part of the monitoring program are used to evaluate groundwater flow direction beneath the site. Groundwater analytical data collected as part of the monitoring program are used to assess concentration changes in groundwater constituents, if any. Site facilities and groundwater monitoring well locations are depicted on Figure 2.

The 2006 groundwater monitoring program was implemented in general accordance with the February 24, 2003 *Water Quality Sampling and Analysis Plan* (WQSAP; URS, 2003). Discussions of the site history, geology, hydrogeology, well installations, previous sampling procedures, and other pertinent information are presented in the following documents:

- *Revised Ground Water Monitoring Plan* (SNR Company, 1992a)
- *Additional Aquifer Characterization Report* (Dames & Moore, 1993a)
- *Addendum Report, Additional Aquifer Characterization* (Dames & Moore, 1993b)
- *Offsite Downgradient Monitoring Well Installation Report* (Dames & Moore, 1994a), and
- *Water Quality Sampling and Analysis Plan* dated October 10, 1997 (Dames & Moore, 1997).

2.0 GROUNDWATER MONITORING

2.1 MONITORING WELL LOCATIONS AND INSTALLATION

Prior to March 1993, eight groundwater monitoring wells and piezometers (Y-1 through Y-8) had been installed at the site. Well Y-1 was installed by The Earth Technology Corporation in 1983; Wells Y-2 through Y-6 were installed by Mittelhauser Corporation in 1985, and Wells Y-7 and Y-8 were installed by SNR Company in June 1989. The well locations are shown on Figure 2.

In March and April 1993, three new monitoring wells (SDB-1, SDB-2, and SDB-3) and one piezometer (SDBP-1A) were installed by Dames & Moore during implementation of the first phase of the *Additional Aquifer Characterization Plan* (AACP; SNR Company, 1992b). Six monitoring wells (Wells Y-2, Y-3, Y-8, and SDB-1 through SDB-3) comprised the Square D - Beaumont facility groundwater monitoring system for the April 1993 sampling. Wells Y-2, Y-8, and SDB-1 were point-of-compliance (POC) monitoring wells for the NPCA, while Wells SDB-2 and SDB-3 comprised POC monitoring wells for the South Post-Closure Area (SPCA), a former regulated unit at the site that was closed in 1996 (see below). Well Y-3, located hydraulically upgradient from the NPCA and SPCA, was used as the background monitoring well.

During May and June 1993, the second phase of the AACP was implemented. Well SDB-4 was installed to replace Well Y-8, and Well SDB-5 was installed to replace Well Y-2. For June 1993 through March 1994, POC monitoring wells for the NPCA included Wells SDB-1, SDB-4, and SDB-5, while Wells SDB-2 and SDB-3 were the POC monitoring wells for the SPCA. Well Y-3 was used as the background monitoring well.

During 1993 groundwater monitoring, statistically significant evidence of a release from the NPCA was detected, resulting in a status change for the NPCA from Detection Monitoring to Evaluation Monitoring per DTSC's letter dated March 14, 1994. As part of the Evaluation Monitoring Program, deeper-screened Well Y-7 was added to the Square D groundwater monitoring system in June 1994 to assess the potential vertical extent of the release from the NPCA. In August 1994, offsite Well SDB-6B was installed north of the site on the Southern Pacific Railroad right-of-way to assess the potential lateral downgradient extent of the release from the NPCA. Thus, by September 1994, the groundwater monitoring system for the NPCA included Wells Y-7, SDB-1, SDB-4, SDB-5, and SDB-6B.

In June 1996, DTSC determined that the SPCA had been closed in accordance with California regulations, and removed the SPCA from Post-Closure Permit requirements (which included groundwater monitoring). As a result, monitoring of SPCA Wells SDB-2 and SDB-3 was discontinued in 1996.

In 1997, the monitoring program was reduced to annual sampling and analysis. Additionally, DTSC requested that older Wells Y-1, Y-4, and Y-6 be sampled and analyzed once more to further characterize the quality of groundwater beneath the site. These wells are located upgradient and crossgradient of the NPCA. Because these wells had not been sampled since 1985 (Well Y-1) to 1992 (Wells Y-4 and Y-6), they were redeveloped prior to sampling. The 1997 annual sampling event included Wells Y-3, Y-7, SDB-1, SDB-4, SDB-5, and SDB-6B, plus Wells Y-1, Y-4, and Y-6. The analytical results for Wells Y-1, Y-4, and Y-6 were consistent with the results from the established groundwater monitoring system; consequently, in its memorandum dated December 19, 1997, DTSC indicated that additional sampling of these wells is not necessary.

The 2006 annual groundwater monitoring included Wells Y-3, Y-7, SDB-1, SDB-4, SDB-5, and SDB-6B. Piezometer SDBP-1A and Wells Y-1, Y-2, Y-4, Y-5, Y-6, and Y-8 were used only to collect groundwater elevation data. Groundwater samples were not collected from these wells and piezometer.

2.2 GROUNDWATER ELEVATIONS

The site piezometer and monitoring wells were resurveyed by Joseph E. Bonadiman & Associates, Inc. on October 4, 2000. The surveyor's report and well location map were presented in the *2000 Annual Groundwater Monitoring Report* (URS, 2001). Bonadiman Engineering previously surveyed the site piezometer and monitoring wells on May 4, 1993; Wells SDB-4 and SDB-5, installed in May and June 1993, were surveyed by Bonadiman Engineering on June 16, 1993; and Well SDB-6B, installed in August 1994, was surveyed by Creative Boundaries on September 7, 1994. For each survey, the measuring points on the wells and piezometer were surveyed to the nearest 0.01 foot relative to Mean Sea Level (MSL). The current well measuring point elevation data are presented in Table 1.

Prior to the sampling event, static groundwater elevations were measured in each well to the nearest 0.01 foot using a Solinst electronic water level indicator. The top of each well casing or sounding tube (where installed) served as the reference point from which the groundwater level was measured. The water level indicator was cleaned between measurements using a non-phosphate detergent solution and rinsed with potable water, then distilled water. In addition, each monitoring well was inspected at the time of gauging for evidence of tampering, damage, and need for repair. Measured depths to groundwater and calculated groundwater elevations for each well on September 27, 2006, are presented in Table 1.

During the 2006 monitoring, the total depths for the wells comprising the current groundwater monitoring system were also measured prior to purging and sampling the wells to evaluate whether excess siltation is occurring. Per the WQSAP, a well will be redeveloped if well siltation reduces the available well screen by 25 percent or more. The total well depths are provided in Appendix A with the summaries of purging and sampling. The results indicated that excessive siltation has not occurred.

2.3 GROUNDWATER PURGING AND SAMPLING

The wells comprising the current groundwater monitoring system (Y-3, Y-7, SDB-1, SDB-4, SDB-5, and SDB-6B) were sampled on September 27 and 28, 2006, in accordance with the February 24, 2003, WQSAP. Field personnel were provided a copy of the current WQSAP (see Form SQ-A in Appendix A). There were no significant deviations from the sampling and analysis plan necessitated by field conditions as documented on Form SQ-B in Appendix A. Logs of well purging and sampling data for the 2006 groundwater monitoring event are provided in Appendix A.

A development rig equipped with a Grundfos Rediflo 2 submersible pump was used to purge the wells. The development rig and pump were owned and operated by Test America Drilling Corp. (dba West Hazmat Drilling Corp.). The pump and electrical cable were decontaminated before use in each well. The pump discharge line at each well consisted of new polyethylene tubing.

To minimize the mixing between stagnant casing water and water from the screened interval and allow collection of samples representative of the formation water, low-flow purging and sampling methodologies were used during the 2006 monitoring event. Purge rates stabilized at 300 to 400 milliliters per minute (ml/min) or 0.08 to 0.11 gallons per minute (gpm). The submersible pump was generally set at the mid point of the saturated portion of the screened interval. For well Y-7, the pump was set at 251 feet below ground surface (bgs) due to excessive turbidity at 255 feet bgs. The water level in each well was measured periodically during purging to ensure minimal drawdown (less than 1 foot during sustained purging), and water quality field parameters were measured continuously using a flow-through cell.

Purge water was monitored for turbidity by rinsing and then filling a turbidity meter vial (cuvette) from the flow cell discharge line. Purge water temperature, specific conductance, pH, turbidity, dissolved oxygen (DO), and oxidation-reduction potential (ORP) were recorded every 3 to 5 minutes on the well purging log forms. Water quality parameter stabilization was used to determine completion of purging activities. Measured values of field parameters, as well as water levels and flow rates, obtained during purging are presented in Appendix A, Groundwater Purging and Sampling Logs, and are discussed in Section 7.1.

Field pH, temperature, specific conductance, DO, and ORP were measured using a YSI 600XL Multiprobe System. Turbidity was measured using a LaMotte 2020 Turbidimeter (nephelometer). The field instruments were calibrated twice each day, once prior to use in the morning and once in the afternoon. Calibration for pH was conducted in the morning using fresh pH 7.00 and 10.00 commercial buffer calibration solutions, and checked using fresh pH 4.00 buffer solution. In the afternoon, the morning calibration was referenced (checked) against the buffer solutions. The calibration for specific conductance was referenced (checked) using a fresh commercial calibration solution with a specific conductance value of 1,288 microSiemens (or micromhos) per centimeter (μS/cm or μmhos/cm) (field calibration of the YSI for specific conductance was not conducted). The ORP was referenced in the field using an ORP reference solution. Calibration of the turbidimeter was conducted using 0.0, 1.0, and 10.0 nephlometric turbidity units (NTUs) commercial calibrants. Calibration/reference check information was recorded on field calibration forms, which are provided in Appendix A.

Groundwater samples were collected from each well using the low-flow submersible pump immediately upon stabilization of the water quality parameters. The groundwater was slowly discharged directly from the pump discharge line into appropriate clean (new) sample bottles provided by the analytical laboratory. Samples collected for total metals and hexavalent chromium (Cr^{VI}) analyses (including the equipment blank) were filtered in the field using a hand-operated vacuum pump fitted with disposable filtration units with 0.45-micrometer (μm) filters. A new filtration unit was used for each sample collected. A summary of the number and type of sample containers used is provided in the Groundwater Purging and Sampling Logs, Appendix A.

Preservatives added to the sample containers by the analytical laboratory prior to sampling consisted of nitric acid (HNO_3) in sample containers for metals (except Cr^{VI}) and hardness analyses. The pH of preserved samples was verified in the field as less than 2 pH units by removing a drop of sample from the container after filling using a new disposable glass Pasteur pipette, and placing the drop on narrow-range pH paper. During the September 2006 sampling event, the addition of acid preservative to the samples in the field was not necessary.

Samples were arbitrarily assigned identification numbers which did not correspond to the well numbers. Quality assurance/quality control (QA/QC) samples (field duplicate and equipment rinse) were also assigned arbitrary identification numbers. Sample identification numbers were assigned as follows:

Sample ID	Sample Description	Date	Time
1-1	Sample from Well Y-7	9/27/06	1516
1-2	Sample from Well SDB-4	9/28/06	1116
1-3	Sample from Well SDB-5	9/28/06	0957
1-4	Equipment Blank	9/27/06	1028
1-5	Sample from Well SDB-6B	9/28/06	0835
1-6	Sample from Well SDB-1	9/28/06	1240
1-7	Duplicate sample from Well SDB-4	9/28/06	1126
1-8	Sample from Well Y-3	9/27/06	1325

To check laboratory analytical precision during the 2006 sampling event, a duplicate water sample (labeled as Sample 1-7) was collected from Well SDB-4. To evaluate the decontamination procedures, an equipment rinse blank (labeled as Sample 1-4) was collected prior to using the pump at the site. The equipment rinse blank was prepared prior to purging Well Y-3 by placing the decontaminated pump in a bottle of commercially available distilled water and running the pump. The outflow from the pump was collected in sample containers appropriate for the intended analyses. The equipment blank was analyzed for the same parameters and constituents as the groundwater samples. The blank for metals analyses was field filtered and preserved in the same manner as the groundwater samples.

Each sample bottle was labeled with the assigned sample number, date and time of sample collection, project number, initials of the person collecting the sample, chemical analyses to be performed on the sample, and the type of preservative used, if any. After filling, each bottle was sealed and placed on ice in an insulated shipping container. Ice was replenished as necessary to maintain the samples in a chilled condition, and the temperature of the cooler was periodically checked to ensure samples were being stored at temperatures between 4 and 7 °C.

Samples were entered onto a chain-of-custody (COC) record. The recorded COC information included the sample number, date and time of sample collection, sample type and matrix, number of containers, sample preservation (if any), chemical analyses requested, project number, signatures of sample collector and persons involved in sample custody, and inclusive dates of sample custody. The samples were then transported to the designated laboratories under COC procedures. Copies of the COC records are provided in Appendix B along with the analytical laboratory reports.

Groundwater purged from the wells and decontamination fluids were temporarily contained in a portable poly tank then discharged to the sanitary sewer with the City of Beaumont's approval.

3.0 MAINTENANCE ACTIVITIES

Maintenance activities at the site for the regulated unit (NPCA) primarily consisted of monthly inspections in accordance with the Hazardous Waste Facility Post-Closure Permit. The inspections were conducted by Mr. Jerry Seaburg, a contractor for Square D. The inspection program was modified slightly in September 2000 to include monthly inspections of the monitoring wells; previously, wells were inspected annually in accordance with the WQSAP. The following table summarizes the inspection program.

Inspection Type	Frequency	Procedure	Log
Security Control Devices (fences, lights, signs, etc.)	Monthly	Visual Observation	Inspection checklist
Erosion Damage	Monthly	Visual Observation	Inspection checklist
Cover Settlement, Subsidence, and Displacement	Monthly	Visual Observation	Inspection checklist
Integrity of Run-On and Run-Off Control Measures	Monthly	Visual Observation	Inspection checklist
Integrity of Cover Drainage System	Monthly	Visual Observation	Inspection checklist
Depth to Water in Leak Detection Sump, if present	Monthly	Visual Observation	Inspection checklist
Condition of Monitoring Wells	Monthly	Visual Observation	Inspection checklist

Copies of the monthly inspection logs are attached in Appendix C. During the inspections, some small surface cracks were observed in the cap. To mitigate the surface cracks, the cracks were filled and re-sealed with asphalt sealant a couple of times during the year.

In accordance with the Post-Closure Permit, an inspection of the NPCA, including sounding of wells and determination of total well depth, is required if a 6.0 or greater Richter magnitude earthquake occurs within 50 miles of the facility or if a 5.0 to 6.0 Richter magnitude earthquake occurs with an epicenter located within approximately 6 miles of the facility. During 2006, no significant earthquakes occurred (greater than 6.0 Richter magnitude within a 50-mile radius or greater than 5.0 Richter magnitude within a 6-mile radius of the Beaumont facility); thus, additional inspection of the NPCA as a result of seismic activity was not necessary. Earthquake activity for 2006 in Southern California was obtained from the Southern California Earthquake Data Center (www.scec.org).

The monitoring wells were inspected during the annual groundwater sampling event at the time of well gauging for evidence of tampering, damage, and need for repair. The wells comprising the current groundwater monitoring system (Y-3, Y-7, SDB-1, SDB-4, SDB-5, and SDB-6B) were also inspected monthly—see inspection logs in Appendix C). The wells and wellheads appeared to be in good condition at the time of the annual sampling.

The leak detection sump located at the northeast corner of the NPCA was also inspected monthly. During each of the inspections, approximately 14 to 19 inches of standing water was observed in the sump (Appendix C).

4.0 NOTEWORTHY ITEMS

There were no items worthy of special notation for the September 2006 monitoring event.

5.0 GROUNDWATER ELEVATION AND FLOW DIRECTION

Depths to groundwater were measured during the annual monitoring event as described in Section 2.2. Depths to groundwater and calculated elevations for September 27, 2006, are presented in Table 1. An average decrease in groundwater elevation of approximately 0.56 feet was observed in the wells from September 2005 to September 2006.

Table 2 presents groundwater elevations from past sampling events from 1985 through 2006, and Figure 3 graphically presents the fluctuations in groundwater elevation over time. From 1985 to 1994, groundwater elevations in the wells decreased, then were relatively steady to slightly increasing from 1994 to 2001 (except for the significant drop in groundwater elevation in Well Y-1 upon redevelopment in 1997). From 2001 to 2006, groundwater elevations have generally decreased, with a slight increase in 2005 (due to the above average rainfall during the winter of 2004-2005).

Groundwater data from the site indicate a northerly groundwater flow direction for 2006 (Figure 4), consistent with the findings from 1993 through 2005. The average groundwater gradient was estimated to be approximately 0.040 foot per foot (ft/ft), which is also consistent with historical gradients. This value is considered relatively steep, indicating an aquifer with low hydraulic conductivity. Groundwater contours were calculated based on groundwater elevations from Wells SDB-1 through SDB-6B and Piezometer SDBP-1A only. Older Wells Y-1 through Y-8 were not utilized due to their inconsistent construction.

The vertical gradient beneath the site was estimated using the following equation:

$$i_v = dh/dl$$

where i_v	=	vertical gradient
dh	=	difference in groundwater elevation between the two wells, and
dl	=	difference in average depth of each saturated portion of well filter pack.

The vertical gradient was based on comparing the groundwater elevations between shallower Wells Y-2 and SDB-5 and deeper Well Y-7. The results of the vertical gradient evaluation are summarized in Table 3. The vertical gradient between Wells Y-2 and Y-7 in September 2006 was 0.041 ft/ft, with the gradient directed downwards. The vertical gradient between Wells SDB-5 and Y-7 in September 2006 was 0.061 ft/ft, with the gradient directed upwards. These findings are consistent with the results from 1993 through 2005. The reason for the difference in vertical gradient direction is not clearly understood. One plausible explanation is that the water levels in Wells Y-2 and SDB-5 are influenced by hydraulic heads in different sand stringers. As discussed in the *Additional Aquifer*

Characterization Report (Dames & Moore, 1993a), groundwater beneath the site appears to occur in relatively thin silty/clayey sand layers embedded in a relatively impermeable, partially cemented fine-grained clayey silt. The sand layers are likely the result of fluvial deposition and most likely have a lenticular geometry; some should pinch out in different directions. The hydraulic pressures in the discrete sand layers may vary from layer to layer, laterally and vertically; thus, depending on which layers are intersected by the well screen and sand pack in each well, the hydraulic head could vary. It also should be noted that the bottom of the sand pack in Well SDB-5 is deeper (233.5 feet bgs) than that in Well Y-2 (223 feet bgs). Therefore, Well SDB-5 may be completed in a deeper sand stringer(s) causing a lower water level elevation in Well SDB-5 than Well Y-2.

The groundwater flow rate beneath the site was calculated using the following equation:

$$q = Ki$$

where q = Darcy groundwater flow rate
K = hydraulic conductivity, and
i = hydraulic gradient.

The linear groundwater flow velocity (V) beneath the site was estimated using the following equation:

$$V = q/n$$

where V = linear groundwater flow velocity
q = Darcy groundwater flow rate, and
n = porosity.

Based on the results of slug tests conducted at the site (Dames & Moore, 1994b), hydraulic conductivity values range from 1.94 x 10^{-7} feet per second (ft/sec) in Well Y-7 to 1.20 x 10^{-5} ft/sec in Well SDB-5. The average hydraulic gradient was estimated to be 0.040 based on the September 2006 groundwater elevation measurements. Porosity of the aquifer was assumed to be approximately 0.2. Thus, the calculated groundwater flow rate ranges from 0.24 feet per year (ft/yr) in Well Y-7 to 15 ft/yr in Well SDB-5, and the calculated groundwater linear velocity ranges between 1.2 and 76 ft/yr.

6.0 MONITORING PARAMETERS AND ANALYTICAL PROGRAM

Two types of parameters were monitored at the facility in 2006 as part of the groundwater monitoring program:

- Group 1: Field parameters and groundwater elevations, and
- Group 2: Groundwater monitoring parameters.

Per the WQSAP, the wells are monitored for Group 3 parameters (constituents of concern) every three years. The next scheduled sampling event for the Group 3 parameters will be in 2008. Development of the list of designated field and monitoring parameters and constituents of concern is discussed in the WQSAP (URS, 2003).

Field parameters (Group 1) were measured during groundwater purging and sampling (see Section 2.3). Groundwater monitoring parameters (Group 2) comprise the laboratory chemical analysis program. The laboratory analyses were performed by Calscience Environmental Laboratories, Inc. (Calscience) of Garden Grove, California. Calscience is certified by the State of California Department of Health Services, Environmental Laboratory Accreditation Program. Analyses were performed in accordance with EPA's *Test Methods for Evaluating Solid Waste, Physical/Chemical Methods* (SW-846, Third Edition).

6.1 FIELD PARAMETERS

Temperature, specific conductance, pH, turbidity, DO, and ORP were measured during well purging and sampling (see Section 2.3). The field parameters were measured at each monitoring well during purging to evaluate when groundwater quality had stabilized and when groundwater sampling should commence.

6.2 GROUNDWATER MONITORING PARAMETERS

The groundwater samples were analyzed for the following monitoring parameters:

Parameter	Analytical Method
Cr^{VI}	EPA 218.6
Chromium (total)	EPA 6020
Hardness	EPA 130.2
Specific Conductance	EPA 120.1
Sulfate	EPA 300.0
Total Dissolved Solids (TDS)	EPA 160.1

In 2005, phosphorous, a Group 3 constituent of concern, was detected above the phosphorous notification level of 0.3 milligrams per liter (mg/L) in background Well Y-3 at 0.57 mg/L and in four of the five downgradient wells (Y-7, SDB-1, SDB-5, and SDB-6B) at concentrations ranging from 0.60 to 0.72 mg/L (the concentration in Well SDB-4 was 0.24 mg/L). To further evaluate the 2005 phosphorous detections, the 2006 groundwater samples were also analyzed for phosphorous by EPA Method 365.3, along with the monitoring parameters.

7.0 SUMMARY OF GROUNDWATER ANALYSES

This section describes and summarizes the results of the annual monitoring event conducted in September 2006. Analytical results for the groundwater samples are presented in Table 4. Copies of the laboratory reports and chain-of-custody records for the 2006 groundwater samples are presented in Appendix B. Analytical results for past quarterly, semi-annual, and annual sampling and re-sampling from July 1983 through September 2006 are summarized in Tables D-1 through D-26 of Appendix D. Table D-27 presents previous leak detection sump analytical results.

Analytical data validation was conducted in general accordance with the guidelines outlined in the *National Functional Guidelines for Inorganic Data Review* (EPA, 2004). Based upon the results of the reported laboratory quality control, QA/QC samples, and analytical data validation, it is URS' opinion that the analytical data associated with the Square D project are acceptable for use, and that the data accurately represent concentrations in the environmental samples submitted to the laboratory. A summary of the analytical data QA/QC evaluation is provided in Appendix E.

7.1 FIELD PARAMETERS

Field parameters measured during well purging and collection of samples during the 2006 groundwater monitoring event included pH, specific conductance, temperature, turbidity, DO, and ORP. Measured parameters were recorded on field forms and are presented in Appendix A.

During purging, temperatures measured varied from 21.55 to 29.30 °C, pH values ranged from 6.82 to 8.24, specific conductance ranged from 299 to 608 μS/cm, turbidity measurements ranged from 0.56 to 17.9 NTU, DO values ranged from 4.90 to 8.44 mg/L, and ORP ranged from -7.7 to 118.4 millivolts (mV). At the completion of purging, field parameters had generally stabilized to within 0.1 pH unit for pH, 3 percent for specific conductance, 1 °C for temperature, 10 to 20 percent for turbidity, 10 percent for DO, and 10 mV for ORP.

At the time of sampling, temperature measurements ranged from 25.93 to 29.30 °C, pH ranged from 7.21 to 7.96, specific conductance ranged from 303 to 597 μmho/cm, turbidity values ranged from 0.56 to 6.71 NTU, DO ranged from 4.90 to 6.62 mg/L, and ORP ranged from 5.9 to 86.1 mV.

7.2 GROUNDWATER MONITORING PARAMETERS

The September 2006 analytical results for groundwater monitoring parameters are summarized in Table 4 and shown on Figure 5. Graphical presentations of the groundwater monitoring parameters from 1993 to 2006 are provided on Figures 6A through 6F for the wells comprising the current groundwater monitoring system. Non-detects for these parameters are plotted as the detection limit, not as zero.

Hardness ranged from 100 mg/L in Well Y-3 to 200 mg/L in Well SDB-1. Laboratory specific conductance ranged from 290 µmho/cm in Well Y-7 to 540 µmhos/cm in Well SDB-1.

Sulfate concentrations ranged from 3.5 mg/L in Well Y-3 to 160 mg/L in Well SDB-1. The recommended secondary standard for sulfate in drinking water in California is 250 mg/L. Sulfate was also detected in the equipment blank at a concentration of 1.7 mg/L. The presence of sulfate in the equipment blank sample resulted in the sulfate detections in Wells Y-3 and Y-7 to be qualified as non-detect with a "U" (the Y-3 and Y-7 concentrations were less than five times the sulfate concentration detected in the equipment blank).

TDS concentrations ranged from 194 mg/L in Well Y-7 to 386 mg/L in Well SDB-1. The recommended secondary standard for TDS in drinking water in California is 500 mg/L.

Total chromium concentrations ranged from 0.00356 mg/L in Well Y-3 to 0.0228 mg/L in Wells SDB-1 and SDB-5. Cr^{VI} concentrations ranged from 0.0031 mg/L in Well Y-3 to 0.013 mg/L in Well SDB-1. The current federal primary Maximum Contaminant Level (MCL) for total chromium is 0.1 mg/L, and the state MCL is 0.05 mg/L.

A comparison of the maximum detected concentrations for the groundwater monitoring parameters versus concentration limits and notification levels established in the WQSAP for the Post-Closure Permit is provided in Table 5. None of the concentration limits or notification levels for the groundwater monitoring parameters was exceeded during the September 2006 groundwater sampling.

7.3 CONSTITUENTS OF CONCERN

As previously discussed in Section 6.0, constituents of concern are only tested for every three years. However, due to detection of phosphorous in both upgradient and downgradient wells in 2005, the 2006 groundwater monitoring well samples were also analyzed for phosphorous.

Phosphorous was detected in downgradient Well Y-7 at a concentration of 3.5 mg/L; the notification level is 0.3 mg/L (see Table 5). This deeper screened well is used to assess the potential vertical extent of the release from the NPCA; however, phosphorous was not detected above the laboratory reporting limit of 0.10 mg/L in the five shallower wells at the site. The source of the phosphorous in deep Well Y-7 in unclear, but does not appear to be associated with a release at the Site. In 2005, low levels of phosphorous were detected across the site in both upgradient and downgradient wells (from background Well Y-3 [0.57 mg/L] to offsite downgradient Well SDB-6B [0.71 mg/L]) suggesting that the presence of phosphorous in the groundwater appears to be a regional issue. Prior to 2005, phosphorous was only detected sporadically at the Site (see Table D-23 in Appendix D).

7.4 DETECTED CONCENTRATIONS VERSUS TIME

The 1993 through 2006 data for the groundwater monitoring parameters were plotted against time to evaluate data trends. Figures 6A through 6F graphically present the concentrations for each of the monitoring parameters versus time for the NPCA wells (Wells Y-7, SDB-1, SDB-4, SDB-5, and SDB-6B) and background Well Y-3. Figures 7A and 7B present isoconcentration maps of the monitoring parameters of concern (Cr^{VI} and sulfate) to illustrate the lateral extent of groundwater impact associated with the NPCA.

The following subsections provide a brief discussion of each groundwater monitoring parameter in the NPCA wells compared to background Well Y-3.

Total Chromium (Figure 6A):

Total chromium concentrations in 2006 increased from 2005 levels, except for Well Y-7, which had a significant decrease in detected concentration from 0.0314 mg/L in September 2005 to 0.00828 mg/L in September 2006. The lower September 2006 detection was consistent with previous concentrations in Well Y-7 from 1997 through 2003 (generally 0.005 to 0.009 mg/L). The Cr^{VI} concentrations in this well have been very consistent during the same time period (generally 0.006 to 0.007 mg/L).

Overall, total chromium concentrations have been low and extremely steady since December 1996 – generally varying only 0.001 to 0.004 mg/L in each well – but were slightly higher in 2006 (except for Well Y-7). Well Y-7 has shown the greatest fluctuations, with concentrations ranging from a low of 0.004 mg/L in 1998 to a high of 0.0314 mg/L in 2005, with intermediate levels fluctuating between 0.005 and 0.009 mg/L.

Prior to September 1995 (when the samples were analyzed by D&M Laboratories), total chromium concentrations showed significant fluctuations. Concentration peaks in March 1994 and March 1995 have been attributed to tainted acids in the preserved sample bottles provided by the laboratory.

Hexavalent Chromium (Figure 6B):

The Cr^{VI} concentrations, which have been plotted at the same scale as total chromium, have remained relatively steady since August 1993. In Well SDB-1, a gradual increase in concentration by about 0.006 mg/L was observed between December 1996 and September 1998 (0.009 to 0.015 mg/L); however, since then, the Cr^{VI} concentration in Well SDB-1 has been very steady (varying by only 0.0002 to 0.003 mg/L). In Well SDB-4, Cr^{VI} concentrations gradually decreased from 0.015 mg/L in 1995 to about 0.009 in 2003, 2004, and 2006. In Well SDB-5, Cr^{VI} concentrations fluctuated between 0.007 and 0.013 mg/L between 1994 and 2000, but have remained steady for the past six years (0.007 to 0.008 mg/L).

The lateral extent of Cr^{VI} impact to groundwater associated with the NPCA is depicted on Figure 7A. In addition to the 2006 Cr^{VI} concentrations (except for Well Y-7 which is screened at a deeper interval), data obtained in 1997 for Wells Y-1, Y-4, and Y-6, and in 1995 for Wells SDB-2 and SDB-3, were used to delineate the plume. The highest Cr^{VI} concentrations are from Wells SDB-1, SDB-4, and SDB-5 located at the northern edge of the former ponds of the NPCA. The concentration attenuates outward in all directions to the background level of approximately 0.003 mg/L. The 2006 Cr^{VI} isoconcentration map is essentially unchanged from the 2005 map, reiterating the consistency of the Cr^{VI} data.

Hardness (Figure 6C):

Hardness concentrations have shown considerable fluctuation over the years, particularly for Wells SDB-1 and SDB-4. The greatest fluctuations were observed in 1997 and 1998. From 1999 to 2001, all of the monitoring wells exhibited a decrease in hardness. Since 2001, hardness concentrations in Wells Y-3 and Y-7 have been the most consistent. Well SDB-1 showed a steady increase in hardness from 1993 to 1998 (110 to 236 mg/L), leveled off between 1998 and 2000 (233 to 236 mg/L), then has fluctuated between 160 to 220 mg/L since 2001.

Specific Conductance (Figure 6D):

Specific conductance values in 2006 were consistent with or slightly lower than the 2005 results, except for Well SB-6B. Significant trends over time include a steady increase in specific conductance in Well SBB-6B between 1995 and 2006 (from 300 to 450 µmhos/cm) and decreases in Wells SDB-4 and SDB-5 since 1998 (550 to 410 µmhos/cm and 500 to 370 µmhos/cm, respectively). Specific conductance has remained steady in Wells Y-3, Y-7, and SDB-1, with an earlier increase for Well SDB-1 between 1993 and 1998 (330 to 545 µmhos/cm), similar to hardness and sulfate.

Sulfate (Figure 6E):

In 2006, sulfate concentrations were similar to the 2005 levels for each of the wells, with slight increases in Wells SDB-1 and SDB-5, and slight decreases in Wells SDB-4 and SDB-6B. Overall, sulfate concentrations have remained relatively constant in most of the wells since April 1993, with only a few fluctuations. Noted trends include a steady increase for Well SDB-1 from 1993 to 1998, with concentrations leveling off between 130 and 170 mg/L over the past nine years. Additionally, sulfate concentrations significantly decreased in Well SDB-5 from 1997 to 2001 (110 to 52 mg/L) and in Well SDB-4 from 2000 to 2003 (170 to 80 mg/L).

The lateral extent of sulfate impact to groundwater associated with the NPCA is depicted on Figure 7B. In addition to the 2006 sulfate concentrations (except for Well Y-7 which is screened at a deeper interval), data obtained in 1997 for Wells Y-1, Y-4, and Y-6, and in 1995 for Wells SDB-2 and SDB-3, were used to delineate the plume. The highest sulfate concentrations are located along the downgradient (northern) edge of the NPCA in Wells SDB-1 and SDB-4. These highs are divided by a low sulfate concentration at SDB-5 of 39 mg/L. North of Well SDB-4 and the NPCA, sulfate concentrations attenuate to 41 mg/L at Well SDB-6B. The 2006 sulfate isoconcentration map is similar to the 2004 and 2005 maps, with only a slight decrease in the size of the 100 mg/L isoconcentration contour.

TDS (Figure 6F):

TDS concentrations in 2006 were similar to the 2005 levels for each of the wells, with slight increases and decreases, except SDB-1. From 2004 to 2005, TDS increased in Well SDB-1 from 350 to 460 mg/L, then decreased to 386 mg/L in 2006. Historically, decreases were observed in four of the wells (Y-3, Y-7, SDB-4, and SDB-5) from 1997 through 2002, then concentrations in five of the six wells increased from 2002 to 2003 (all but SDB-5), then were steady from 2003 to 2006 (except SDB-1). Well SDB-1 has exhibited the greatest fluctuations in TDS during the monitoring period (1996-2006) ranging from 256 to 460 mg/L.

8.0 SUMMARY

The results of the 2006 groundwater monitoring conducted at the former Square D facility in Beaumont, California indicate the following:

- Groundwater elevations in 2006 remained relatively consistent with historic measurements; an average decrease in elevation of approximately 0.56 feet was observed in the wells from September 2005 to September 2006.
- The average groundwater gradient was estimated to be 0.040 ft/ft, consistent with historical data. The vertical gradient between Wells SDB-5 and Y-7 was calculated to be 0.061 ft/ft, with the gradient directed upwards, while the vertical gradient between Wells Y-2 and Y-7 was 0.041 ft/ft, with the gradient directed downwards. These vertical gradients are consistent with the data from the past 13 years. Numerous investigations at the site have shown the first water-bearing zone is composed of relatively thin, semi-permeable silty sand stringers imbedded in a fine-grained clayey silt; thus, it is plausible that Wells SDB-5 and Y-2 are screened within different sandy stringers in the aquifer that have different hydraulic heads.
- In 2006, the calculated groundwater flow rate ranged from approximately 0.24 ft/yr in Well Y-7 to 15 ft/yr in Well SDB-5, and the calculated groundwater linear velocity ranged between 1.2 and 76 ft/yr. These flow rates and velocities are consistent with the findings from 1993 through 2005.
- Comparison of the September 2006 analytical data from the NPCA point-of-compliance wells with the background well includes total chromium, Cr^{VI}, hardness, specific conductance, sulfate, and TDS. Concentrations of these constituents have remained relatively steady in the downgradient wells. Well SDB-1 experienced increasing concentrations of these monitoring parameters from 1993 to 1998; however, none of the concentration limits established for the Post-Closure Permit were exceeded. For the past nine years (1998 through 2006), concentrations of the monitoring parameters in Well SDB-1 have generally stabilized, with only a few fluctuations (e.g., hardness in 2002 and 2004, and TDS in 2002 and 2005). Well SDB-6B also experienced slight increases in hardness, specific conductance, and TDS between 1997 and 2006, but the levels are well below the concentration limits established for this lateral downgradient assessment well.
- During the 2006 annual sampling event, phosphorous, a constituent of concern, was detected above the phosphorous notification level of 0.3 mg/L in vertical downgradient Well Y-7 at a concentration of 3.5 mg/L. Phosphorous was not detected above the laboratory reporting limit of 0.10 mg/L in the five shallower wells at the site. The source of the phosphorous in this deeper well is unclear, but does not appear to be associated with a release at the Site. In 2005, low levels of phosphorous were detected across the site in both upgradient and downgradient

wells suggesting that the presence of phosphorous in the groundwater appears to be a regional issue.

9.0 CONCLUSIONS

The 2006 monitoring program included upgradient (background) Well Y-3 and downgradient Wells Y-7, SDB-1, SDB-4, SDB-5, and SDB-6B. These wells are consistent in design (except for Well Y-7) and we believe accurately monitor groundwater conditions beneath the site. Well Y-7 was added to the monitoring system in June 1994 to evaluate the potential vertical extent of the release detected from the NPCA, and Well SDB-6B, located north of the site, was added in September 1994 to evaluate the potential lateral extent of the release detected from the NPCA.

The analytical data obtained during the 2006 sampling event for point-of-compliance Wells SDB-1, SDB-4, SDB-5, SDB-6B, and Y-7, and background Well Y-3 were below the concentration limits and notification levels established in the February 24, 2003, *Water Quality Sampling and Analysis Plan* for the Post-Closure Permit, except for phosphorous in the vertical downgradient well, Y-7. In response to this notification level exceedence, Square D plans to continue monitoring the phosphorous concentrations in the wells in 2007 rather than waiting until the next scheduled sampling event for phosphorous in 2008. If phosphorous is detected next year above the notification level of 0.3 mg/L in both the upgradient and downgradient wells, Square D may recommend modifying the notification level.

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We trust that this 2006 Annual Report meets the DTSC's current requirements for groundwater monitoring activities at the site. Please feel free to contact us if you should have questions or comments regarding this report.

Respectfully submitted,
URS Corporation

PROFESSIONAL GEOLOGIST
Laurie Skaer Fernandez
No. 5632
Exp 10/31/08
STATE OF CALIFORNIA

Laurie S. Fernandez, P.G.
Senior Geologist
Calif. Prof. Geol. No. 5632, Exp. 10/31/08

RH Patterson

Roy H. Patterson, P.G.
Senior Technical Consultant
Calif. Prof. Geol. No. 3715, Exp. 8/31/08

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TABLES

TABLE 1

2006 GROUNDWATER DEPTHS AND ELEVATIONS

SQUARE D COMPANY
BEAUMONT, CALIFORNIA

Monitoring Well	Surveyed Elevation[a] (ft MSL)	9/22/2005 Depth (ft)	9/22/2005 Elevation (ft MSL)	9/27/2006 Depth (ft)	9/27/2006 Elevation (ft MSL)	Elev. Change 9/05 to 9/06 (ft MSL)
Y-1	2,602.60	188.62	2,413.98	188.23	2,414.37	0.39
Y-2	2,598.50	206.30	2,392.20	206.90	2,391.60	-0.60
Y-3	2,604.17	192.45	2,411.72	192.90	2,411.27	-0.45
Y-4	2,599.48	200.82	2,398.66	201.29	2,398.19	-0.47
Y-5	2,603.07	210.34	2,392.73	--	2,603.07	--
Y-6	2,595.54	199.99	2,395.55	200.47	2,395.07	-0.48
Y-7	2,599.17	208.72	2,390.45	209.41	2,389.76	-0.69
Y-8	2,601.48	212.65	2,388.83	213.32	2,388.16	-0.67
SDBP-1A	2,600.55	201.96	2,398.59	202.41	2,398.14	-0.45
SDB-1	2,597.16	207.23	2,389.93	207.87	2,389.29	-0.64
SDB-2	2,603.22	207.71	2,395.51	208.47	2,394.75	-0.76
SDB-3	2,601.88	200.65	2,401.23	201.19	2,400.69	-0.54
SDB-4	2,602.35	213.98	2,388.37	214.76	2,387.59	-0.78
SDB-5	2,601.15	212.81	2,388.34	213.59	2,387.56	-0.78
SDB-6B	2,597.94	219.07	2,378.87	219.97	2,377.97	-0.90
Average Groundwater Elevation Change						-0.56

a Top of well casing elevations were surveyed on October 4, 2000 by Joseph E. Bonadiman & Associates, Inc.

-- The electronic water level indicator malfunctioned during the gauging of Well Y-5.

TABLE 2

GROUNDWATER ELEVATIONS (Feet MSL)
1985 THROUGH 2006

SQUARE D COMPANY
BEAUMONT, CALIFORNIA

DATE	Y-1	Y-2	Y-3	Y-4	Y-5	Y-6	Y-7	Y-8	SDBP-1A	SDB-1	SDB-2	SDB-3	SDB-4	SDB-5	SDB-6B
8/85	2433.31	2404.66	2413.16	2407.86	2405.29	2403.91	NI	NI	NI	NI	NI	NI	NI	NI	NI
9/85	2433.43	2404.76	2413.06	2407.87	2404.91	2404.01	NI	NI	NI	NI	NI	NI	NI	NI	NI
10/85	2433.33	2405.21	2413.01	2407.51	2404.94	2403.91	NI	NI	NI	NI	NI	NI	NI	NI	NI
6/86	2433.08	2402.91	2411.16	2405.86	2402.66	2402.76	NI	NI	NI	NI	NI	NI	NI	NI	NI
7/86	2432.94	2401.98	2412.04	2405.71	2402.31	2402.68	NI	NI	NI	NI	NI	NI	NI	NI	NI
10/86	2432.10	2400.99	2411.70	2405.35	2401.67	2402.25	NI	NI	NI	NI	NI	NI	NI	NI	NI
1/87	NM	NM	2409.54	2404.63	2398.16	2401.48	NI	NI	NI	NI	NI	NI	NI	NI	NI
5/87	NM	2399.66	2411.27	2405.50	2401.73	2402.28	NI	NI	NI	NI	NI	NI	NI	NI	NI
9/87	NM	2399.62	2411.14	2405.45	2401.70	2402.22	NI	NI	NI	NI	NI	NI	NI	NI	NI
12/87	NM	2397.95	2410.13	2402.70	2398.76	2399.51	NI	NI	NI	NI	NI	NI	NI	NI	NI
4/88	NM	2395.99	NM	2401.54	2398.04	2398.39	NI	NI	NI	NI	NI	NI	NI	NI	NI
6/88	NM	2396.95	2409.60	2401.70	2397.75	2398.65	NI	NI	NI	NI	NI	NI	NI	NI	NI
10/88	NM	2396.31	2409.26	2401.15	NM	2398.37	NI	NI	NI	NI	NI	NI	NI	NI	NI
12/88	NM	2396.06	2409.11	2400.93	NM	2397.17	NI	NI	NI	NI	NI	NI	NI	NI	NI
3/89	NM	2395.68	2408.92	2400.60	2396.80	2396.95	NI	NI	NI	NI	NI	NI	NI	NI	NI
7/89	NM	2394.52	NM	2393.24	2396.39	2397.51	NM	2392.47	NI	NI	NI	NI	NI	NI	NI
10/89	NM	NM	NM	2402.13	2396.16	NM	NM	NM	NI	NI	NI	NI	NI	NI	NI
12/89	NM	2393.79	2408.23	2399.79	2396.16	NM	NM	2391.98	NI	NI	NI	NI	NI	NI	NI
3/90	NM	2393.51	2407.90	2399.44	2395.67	2396.85	NM	2391.61	NI	NI	NI	NI	NI	NI	NI
6/90	NM	2393.60	2408.18	2399.53	2395.86	2395.62	NM	2391.68	NI	NI	NI	NI	NI	NI	NI
9/90	NM	2392.96	2407.39	2398.80	2395.00	2396.21	NM	2390.88	NI	NI	NI	NI	NI	NI	NI
12/90	2426.80	2394.07	2407.39	2398.73	2395.00	2396.34	2391.77	2390.90	NI	NI	NI	NI	NI	NI	NI
3/91	2426.31	2392.40	2409.13	2398.04	2394.40	2394.92	NM	2389.81	NI	NI	NI	NI	NI	NI	NI
6/91	NM	2390.13	2410.05	2398.11	2394.38	2395.01	NM	2389.95	NI	NI	NI	NI	NI	NI	NI
9/91	2426.18	2392.37	2409.96	2397.92	2394.35	2394.87	2391.13	2389.78	NI	NI	NI	NI	NI	NI	NI
10/91	NM	2392.14	2409.76	NM	NM	2394.66	NM	2389.57	NI	NI	NI	NI	NI	NI	NI
12/91	2425.45	2391.87	2409.51	2397.40	2393.72	2394.37	2390.84	2389.24	NI	NI	NI	NI	NI	NI	NI
3/92	2425.48	2391.97	2409.18	2397.50	2393.76	2394.47	2390.66	2389.33	NI	NI	NI	NI	NI	NI	NI
6/92	2425.60	2391.71	2409.13	2397.17	2393.70	2394.20	2391.41	2389.12	NI	NI	NI	NI	NI	NI	NI
9/92	2423.28	2391.51	2409.10	2397.03	2393.34	2394.02	2390.20	2388.91	NI	NI	NI	NI	NI	NI	NI
4/93	2424.90	2391.31	2410.32	2396.71	2393.28	2394.14	2390.00	2388.83	2396.83	2388.80	2396.36	2400.25	NI	NI	NI

TABLE 2

GROUNDWATER ELEVATIONS (Feet MSL)
1985 THROUGH 2006
SQUARE D COMPANY
BEAUMONT, CALIFORNIA

DATE	Y-1	Y-2	Y-3	Y-4	Y-5	Y-6	Y-7	Y-8	SDBP-1A	SDB-1	SDB-2	SDB-3	SDB-4	SDB-5	SDB-6B
6/93	2424.50	2390.71	2410.59	2396.59	2393.26	2393.94	2389.84	2388.83	2396.78	2388.78	2396.35	2400.33	2388.37	2388.64	NI
8/93	2424.72	2390.58	2410.51	2396.51	2393.06	2393.89	2389.76	2388.70	2396.71	2388.70	2396.21	2400.34	2388.21	2388.52	NI
10/93	2424.58	2390.46	2410.27	2396.36	2392.85	2393.74	2389.64	2388.55	2396.59	2388.57	2396.06	2400.21	2388.08	2388.35	NI
12/93	2424.84	2390.48	2410.45	2396.34	2392.84	2393.78	2389.55	2388.44	2396.59	2388.54	2395.98	2400.22	2387.98	2388.24	NI
3/94	2425.72	2390.44	2410.58	2396.34	2392.57	2393.67	2389.50	2388.34	2396.65	2388.52	2395.84	2400.25	2387.90	2388.16	NI
6/94	2425.72	2390.29	2410.22	2396.18	2392.29	2393.48	2389.28	2388.09	2396.50	2388.28	2395.56	2400.10	2387.63	2387.86	NI
9/94	2425.67	2390.99	2410.35	2396.26	2392.32	2393.85	2389.94	2388.63	2396.50	2389.20	2395.40	2400.00	2388.22	2388.67	2383.76
12/94	2425.74	2390.39	2410.80	2396.23	2392.16	2393.50	2389.33	2388.06	2396.57	2388.35	2395.43	2400.24	2387.61	2387.88	2382.25
3/95	2426.24	2390.35	2410.37	2396.20	2392.12	2393.52	2389.46	2387.97	2396.52	2388.30	2395.35	2400.16	2388.60	2387.72	2381.61
6/95	2426.25	2390.35	2411.15	2396.10	2392.10	2393.88	2389.19	2387.94	2396.49	2388.31	2395.26	2400.32	2387.47	2387.68	2381.18
9/95	2426.11	2390.30	2410.61	2395.98	2392.10	2393.72	2389.10	2387.90	2396.33	2388.13	2395.20	2400.13	2387.40	2387.58	2380.86
12/95	2426.43	2390.35	2411.08	2396.08	2392.10	2393.76	2389.17	2387.87	2396.50	2388.17	2395.25	2400.40	2387.41	2387.59	2380.97
3/96	2426.90	2390.59	2411.21	2396.42	2392.22	2393.96	2389.44	2388.16	2396.80	2388.49	2395.39	2400.67	2387.67	2387.84	2381.11
6/96	2426.81	2390.35	2410.97	2396.12	2392.02	2393.72	2389.14	2387.78	2396.54	2388.19	2395.13	2400.37	2387.31	2387.46	2380.67
9/96	2427.02	2390.46	2411.58	2396.22	2392.06	2393.77	2389.22	2387.90	2396.64	2388.29	2395.20	2400.58	2387.40	2387.56	2380.55
12/96	2427.04	2390.44	2411.48	2396.32	2391.98	2393.87	2389.20	2387.85	2396.67	2388.34	2395.23	2400.62	2387.37	2387.50	2380.51
9/97	2412.71	2390.80	2411.76	2397.00	2392.38	2394.24	2389.51	2388.14	2397.08	2388.74	2395.51	2400.92	2387.66	2387.75	2380.53
9/98	2413.86	2391.42	2412.24	2397.92	2392.90	2394.90	2390.18	2388.75	2397.98	2389.33	2396.00	2401.45	2388.25	2388.28	2380.63
9/99	2414.80	2391.91	2412.91	2398.57	2393.04	2395.40	2390.57	2389.09	2398.57	2389.77	2396.31	2401.96	2388.57	2388.59	2380.30
8/00	2414.97	2392.08	2413.65	2398.55	2392.97	2395.39	2390.67	2389.16	2398.83	2389.88	2396.28	2402.31	2388.65	2388.67	2380.29
9/01	2415.20	2392.52	2413.59	2398.48	2393.15	2395.87	2391.06	2389.45	2399.23	2390.29	2396.47	2402.57	2388.96	2388.95	2380.48
9/02	2414.97	2392.52	2413.01	2399.11	2392.84	2395.92	2390.96	2389.24	2399.15	2390.24	2396.13	2402.24	2388.74	2388.74	2379.71
9/03	2414.56	2392.43	2412.28	2398.97	2392.83	2395.87	2390.78	2389.05	2398.91	2390.12	2395.78	2401.76	2388.54	2388.54	2379.22
9/04	2413.71	2391.79	2411.25	2398.39	2391.96	2395.29	2390.10	2388.28	2398.24	2389.56	2394.97	2400.91	2387.80	2387.80	2378.00
9/05	2413.98	2392.20	2411.72	2398.66	2392.73	2395.55	2390.45	2388.83	2398.59	2389.93	2395.51	2401.23	2388.37	2388.34	2378.87
9/06	2414.37	2391.60	2411.27	2398.19	NM	2395.07	2389.76	2388.16	2398.14	2389.29	2394.75	2400.69	2387.59	2387.56	2377.97

NOTES:
NI Piezometer or groundwater monitoring well not installed.
NM Groundwater depth not measured.

TABLE 3

VERTICAL GRADIENT EVALUATION
SEPTEMBER 2006 SAMPLING
SQUARE D COMPANY
BEAUMONT, CALIFORNIA

Groundwater Elevation (ft MSL)			Average Depth of Saturated Filter Pack (ft)			dh (ft)	dh (ft)	dl (ft)	dl (ft)	i= dh/dl	i= dh/dl
Y-2	Y-7	SDB-5	Y-2	Y-7	SDB-5	Y-2 to Y-7	SDB-5 to Y-7	Y-2 to Y-7	SDB-5 to Y-7	Y-2 to Y-7	SDB-5 to Y-7
2391.60	2389.76	2387.56	214.95	259.50	223.55	-1.84	2.2	44.55	35.95	-0.041 (Downwards)	0.061 (Upwards)

i = Vertical gradient = dh/dl. The vertical gradient direction is provided in parentheses.
dh = Difference in groundwater elevation
dl = Difference in average well filter pack depth (saturated portions)

TABLE 4

ANALYTICAL RESULTS
SEPTEMBER 2006 SAMPLING
SQUARE D COMPANY
BEAUMONT, CALIFORNIA

MONITORING WELL	Y-3	Y-7	SDB-1	SDB-4	SDB-4 Duplicate	SDB-5	SDB-6B	Equip. Blank
	Results in Milligrams per Liter (mg/L) Except as Indicated							
Chromium VI	0.0031	0.0055	0.013	0.0094	0.0094	0.0069	0.0056	<0.00020
Chromium, Total	0.00356	0.00828	0.0228	0.0129	0.0124	0.0228	0.0122	<0.00100
Hardness	100	110	200	130	130	130	150	<2.0
Specific Conductance (umhos/cm)	320	290	540	390	390	330	450	3.9
Sulfate	3.5 U	5.9 U	160	74	75	39	41	1.7
Total Dissolved Solids	198	194	386	280	272	242	298	3.0
Phosphorus, Total	<0.10	3.5	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10

Notes:
U = The analyte was qualified as not-detected above the associated result due to detection in the equipment blank.

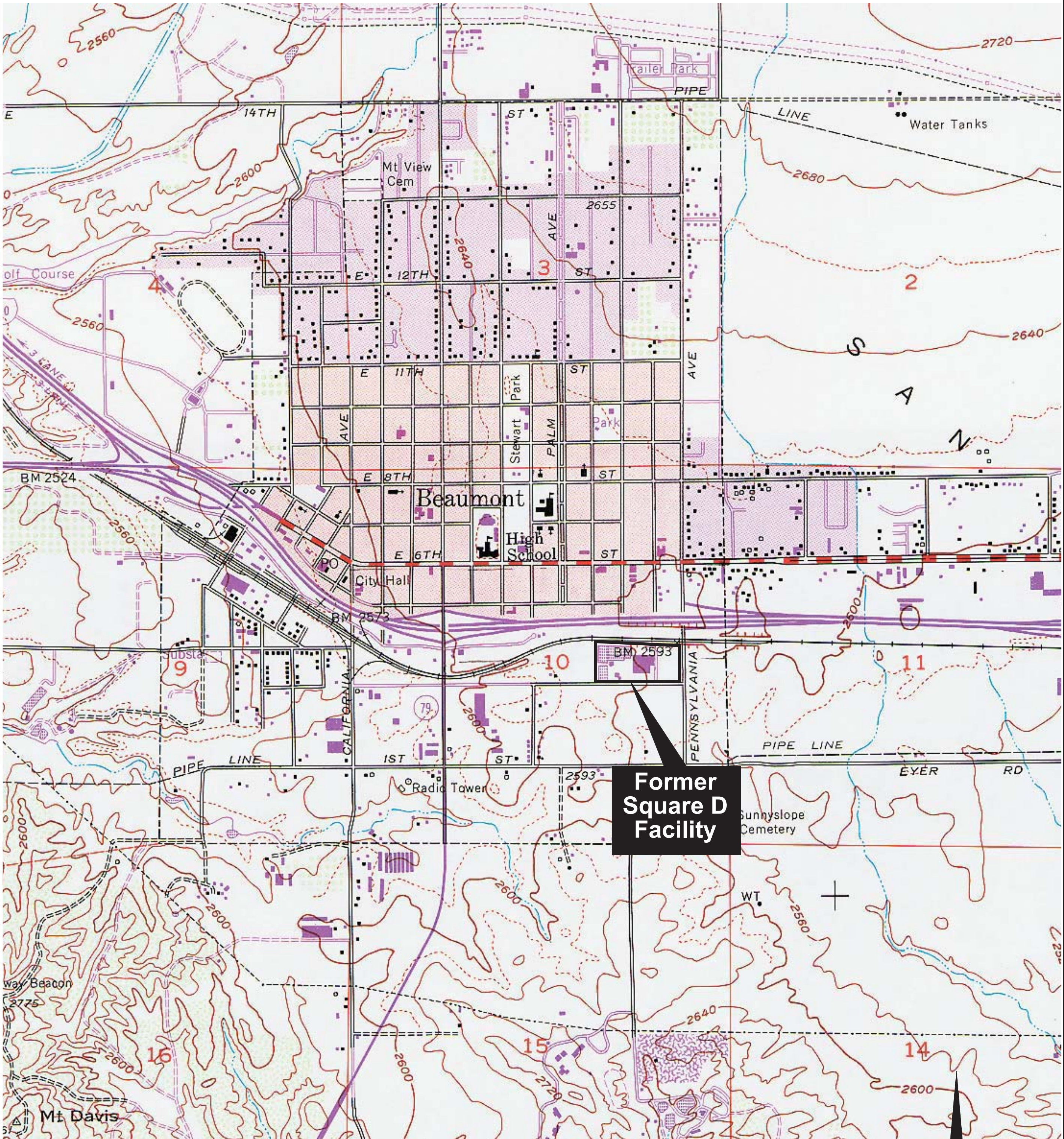
TABLE 5

COMPARISON OF ANALYTICAL RESULTS WITH CONCENTRATION LIMITS AND NOTIFICATION LEVELS SEPTEMBER 2006 SAMPLING

SQUARE D COMPANY
BEAUMONT, CALIFORNIA

Monitoring Parameter/ Constituent of Concern	Max Detect in Y-7 and SDB-6B	Concentration Limit/Notification Level for Y-7 and SDB-6B	Conc. Limit Exceeded?	Max Detect in Y-3, SDB-1, SDB-4 and SDB-5	Notification Level for Y-3, SDB-1, SDB-4 and SDB-5	Notification Level Exceeded?
Chromium VI	0.0056	0.026	No	0.013	0.026	No
Chromium, Total	0.0122	0.05	No	0.0228	0.05	No
Hardness	150	200	No	200	240	No
Specific Conductance (umhos/cm)	450	900	No	540	900	No
Sulfate	41	75	No	160	250	No
Total Dissolved Solids	298	490	No	386	660	No
Phosphorous	3.5	0.3	Yes	<0.10	0.3	No

FIGURES



REFERENCE: USGS 7.5 Minute Series Beaumont, CA Quad, Photorevised 1988

0 1/2
Scale in Miles

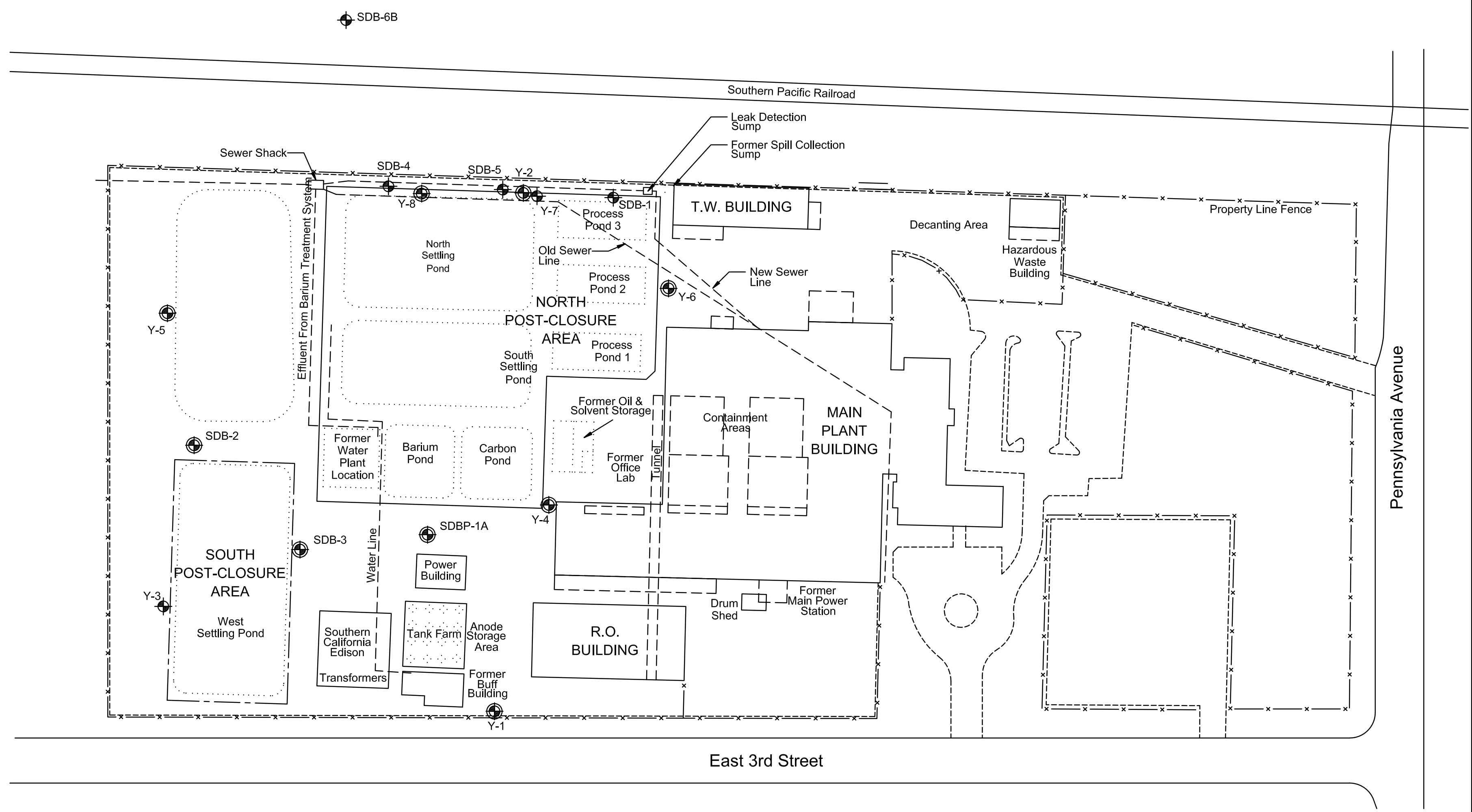
N

L:/Beaumont/fac loc map.fh10 1/03

FACILITY LOCATION MAP

Project No.: 29864170	Date: FEBRUARY 2005	Project: SQUARE D COMPANY 1060 EAST 3RD ST., BEAUMONT, CA	Figure 1

URS



Explanation:

SDB-4 Current Groundwater Monitoring System Well

SDBP-1A Piezometer (or Monitoring Well) for Groundwater Elevations Only

N

0 100 200

WELL LOCATION MAP

SQUARE D COMPANY
1060 EAST 3RD STREET
BEAUMONT, CALIFORNIA
For Square D Company

URS

FIGURE 2

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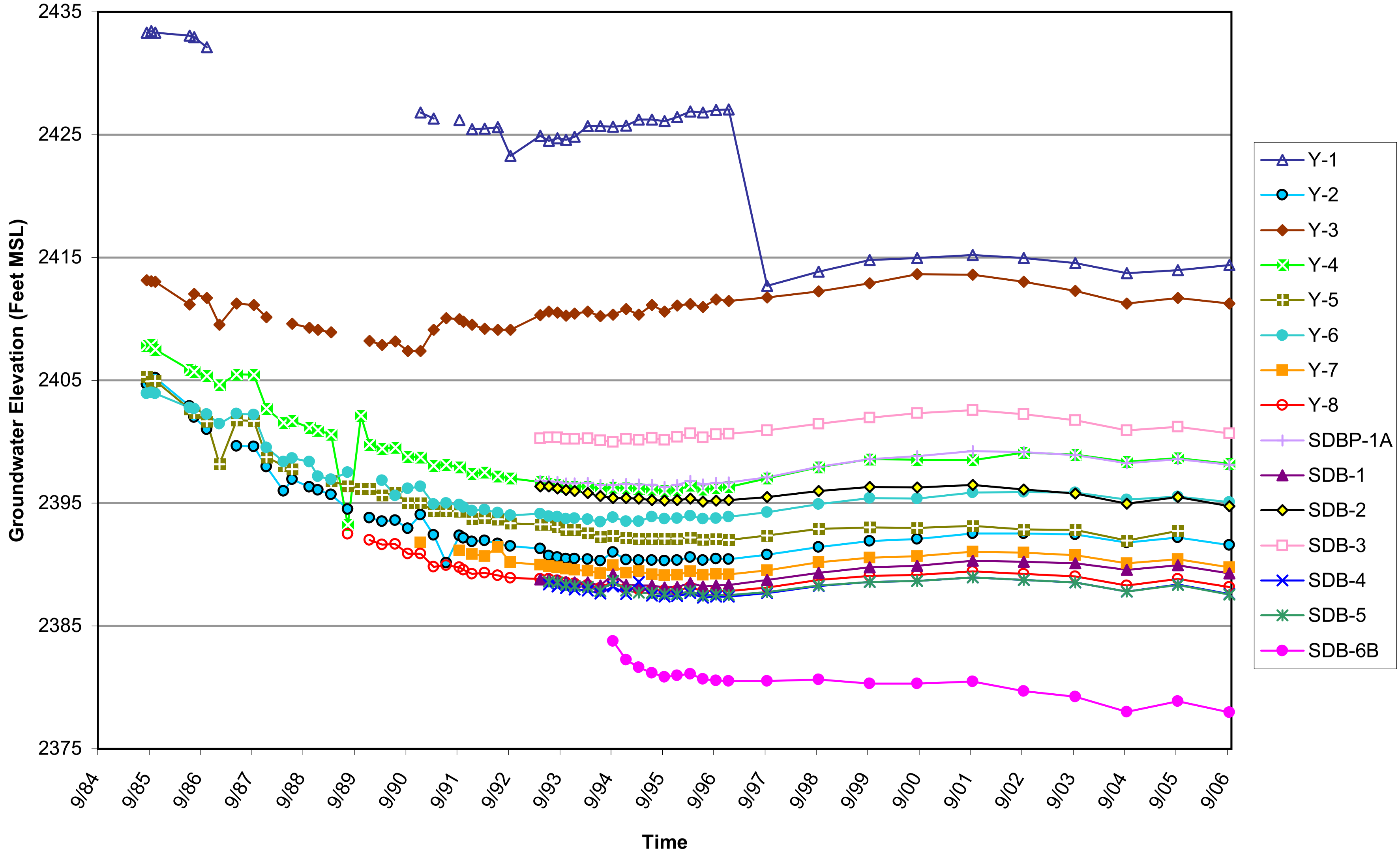
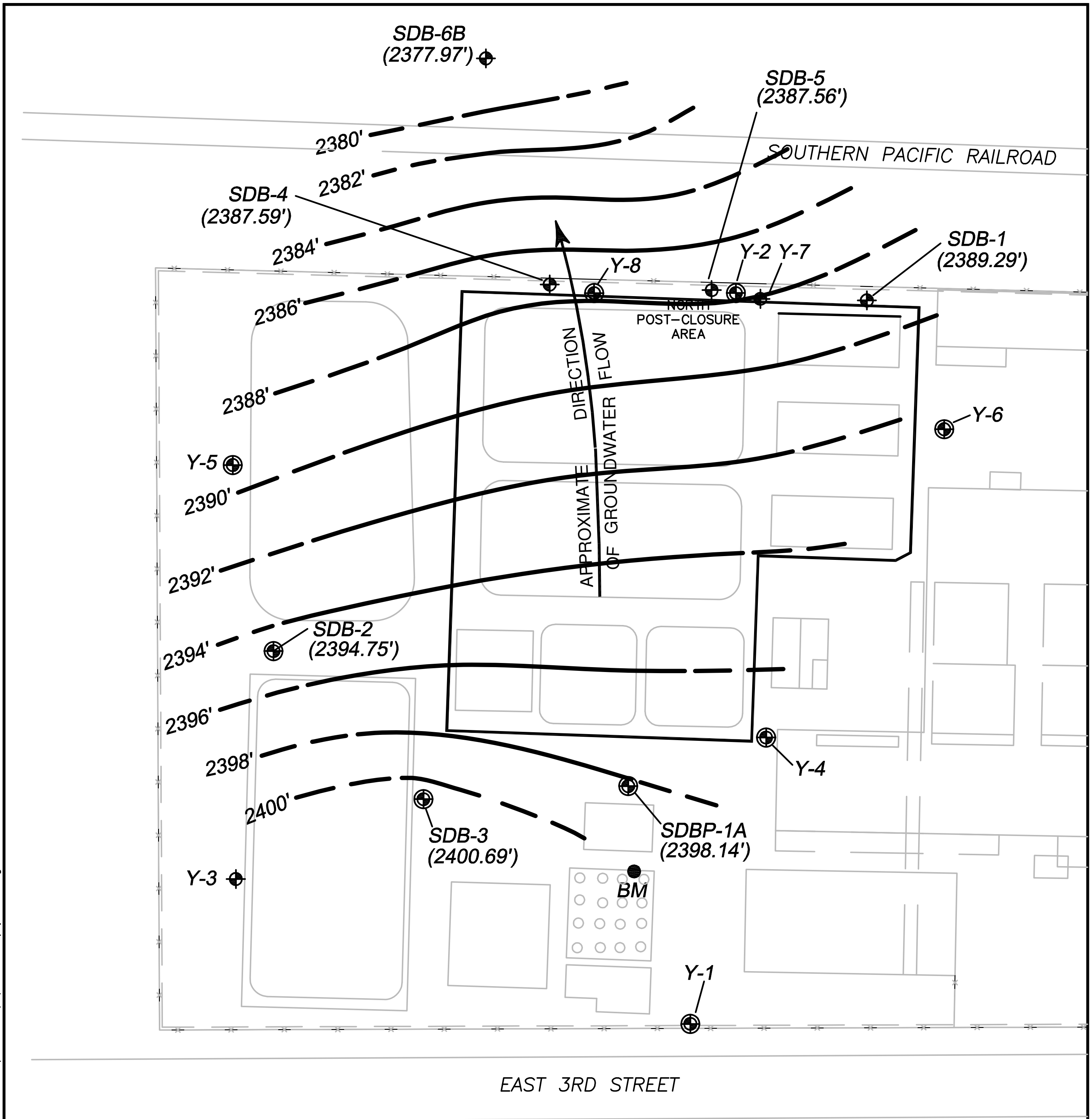
GROUNDWATER ELEVATION VERSUS TIME
1985 THROUGH 2006



URS

Square D Company
Beaumont, California
FIGURE 3



GROUNDWATER CONTOUR MAP
SEPTEMBER 2006

SQUARE D COMPANY
1060 EAST 3RD STREET
BEAUMONT, CALIFORNIA
For Square D Company

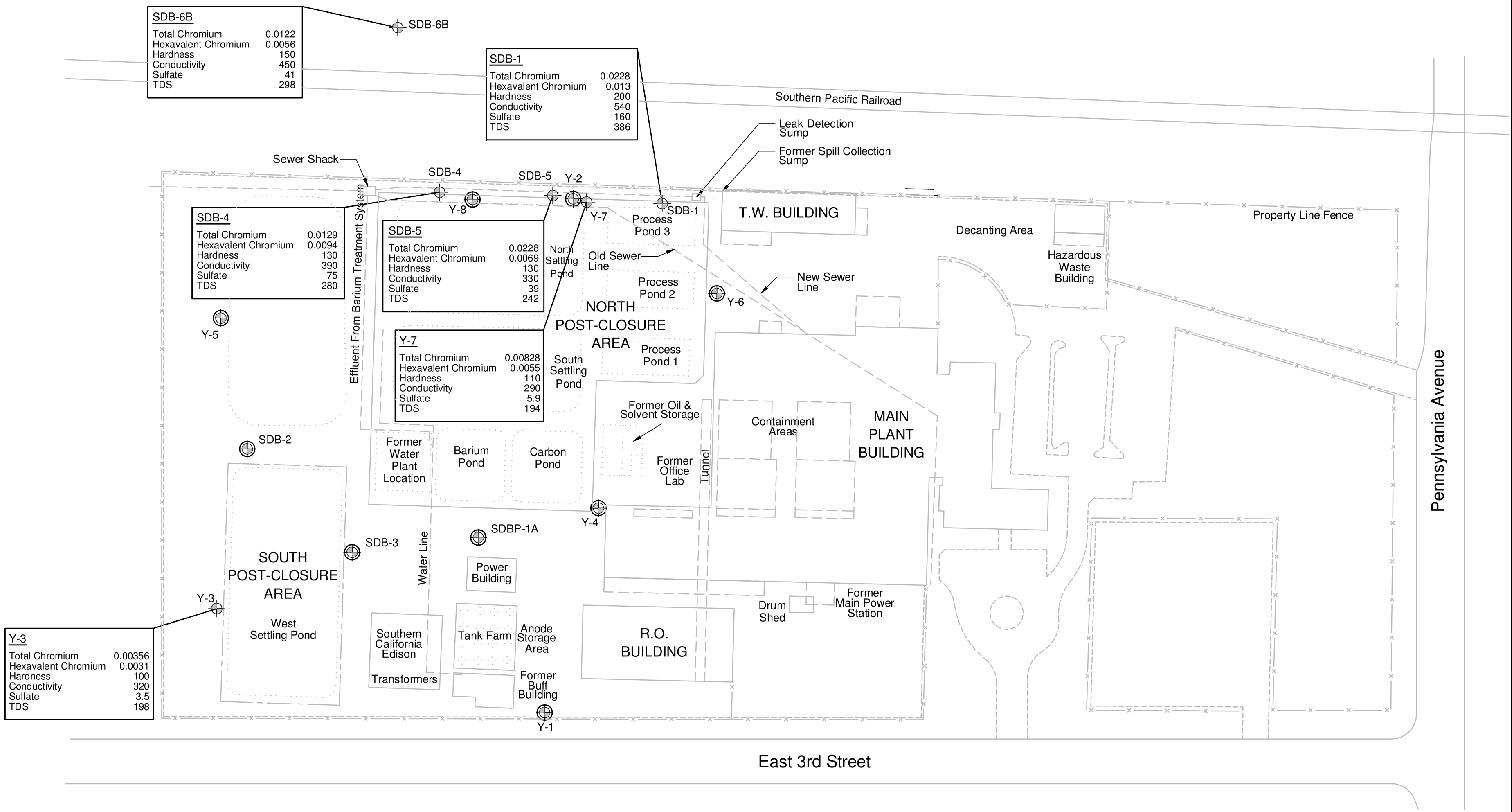
EXPLANATION:

	CURRENT GROUNDWATER MONITORING SYSTEM WELL
	PIEZOMETER (OR MONITORING WELL) FOR GROUNDWATER ELEVATIONS ONLY
(2396.00')	GROUNDWATER ELEVATION (FT MSL) ON SEPTEMBER 27, 2006
	GROUNDWATER ELEVATION CONTOUR (DASHED WHERE APPROXIMATE)

0 50 100
SCALE IN FEET

URS

FIGURE 4



Explanation:

SDB-4 Current Groundwater Monitoring System Well

SDBP-1A Piezometer (or Monitoring Well) for Groundwater Elevations Only

Note:
Concentrations of Groundwater Monitoring Parameters are in Milligrams per Liter (mg/L), except for Conductivity which is in Micromhos per Centimeter (umhos/cm).

N

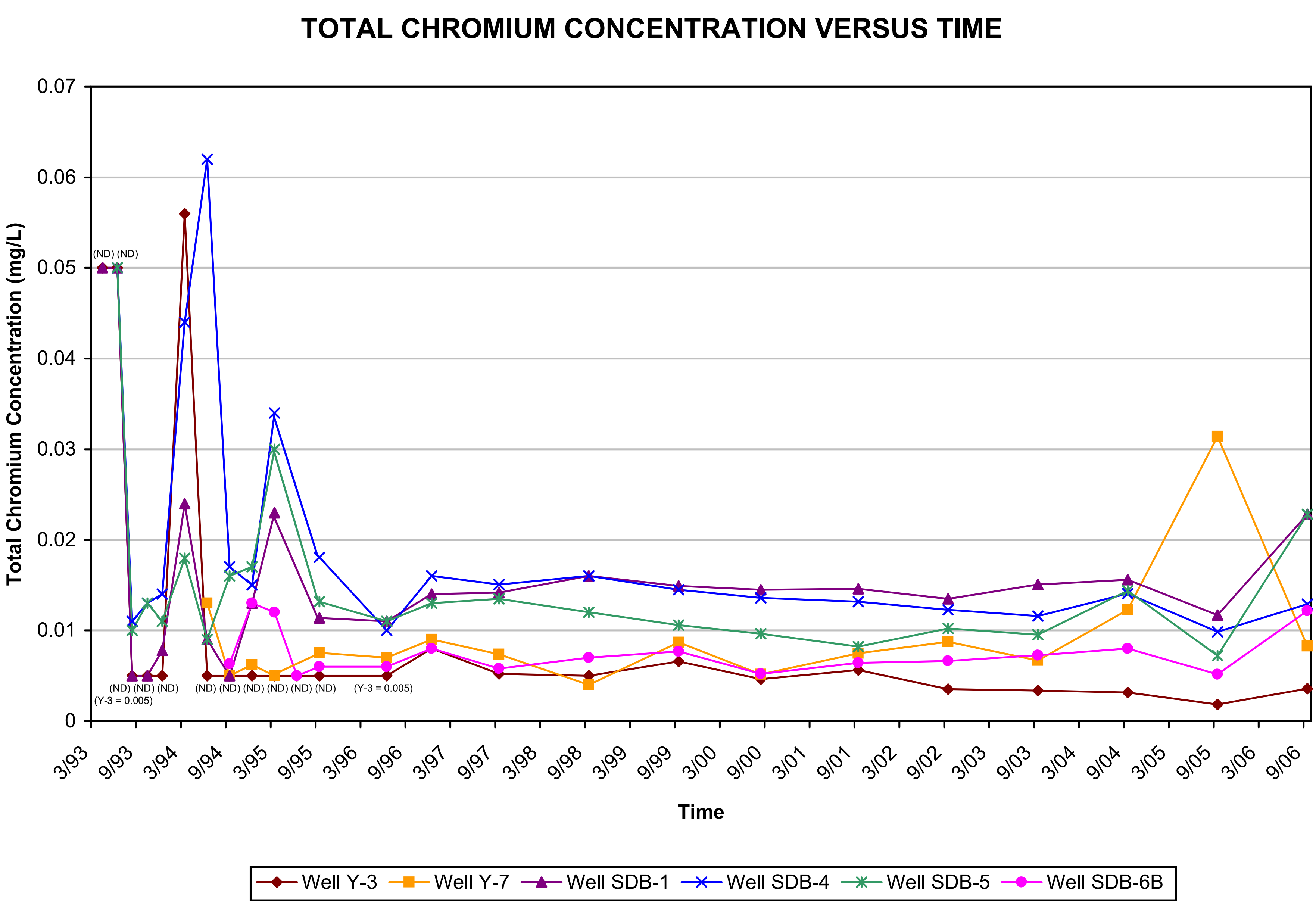
0 100 200

2006 GROUNDWATER MONITORING PARAMETERS DATA

SQUARE D COMPANY
1060 EAST 3RD STREET
BEAUMONT, CALIFORNIA
For Square D Company

URS

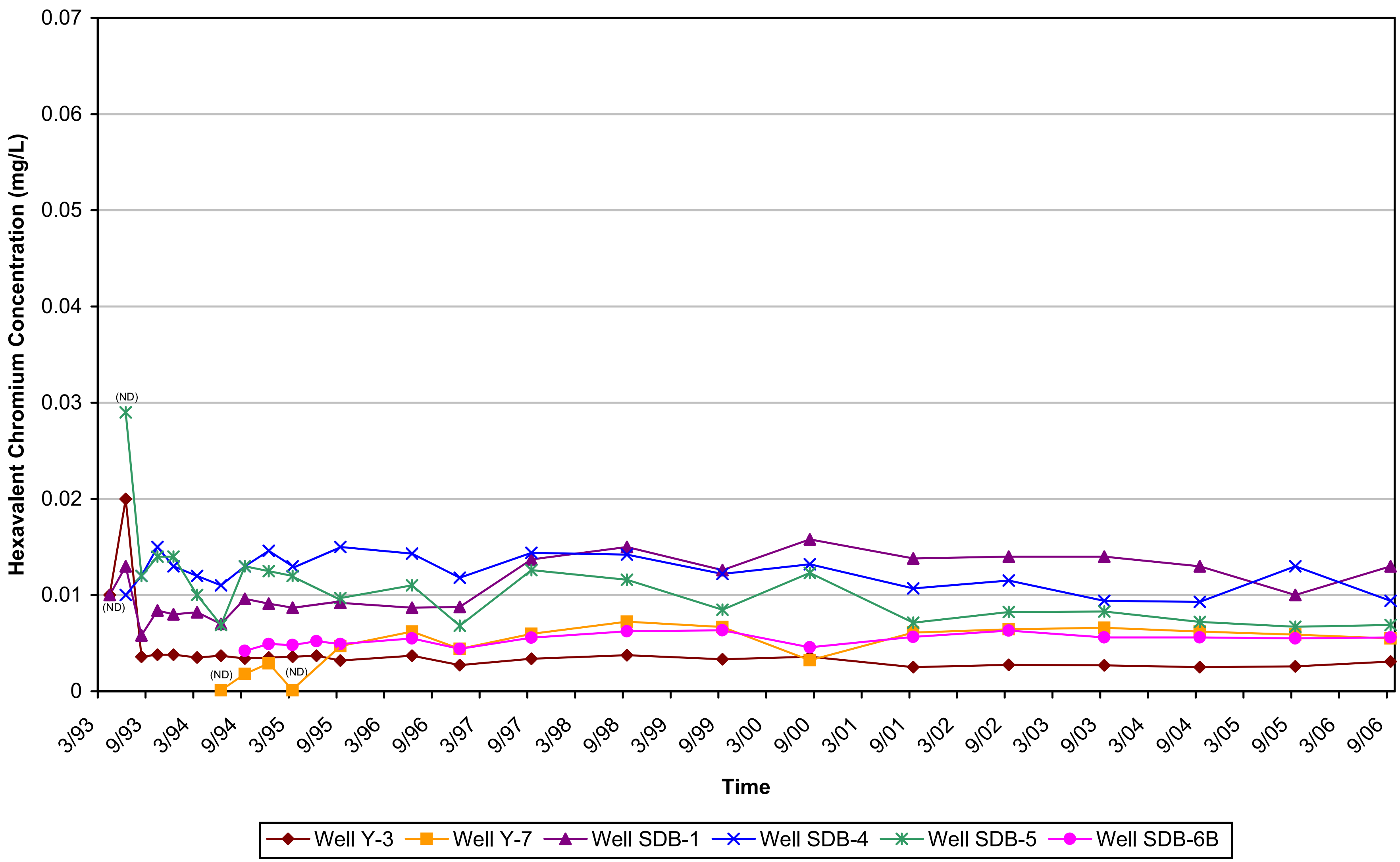
FIGURE 5



Square D Company
Beaumont, California
FIGURE 6A

URS

HEXAVALENT CHROMIUM CONCENTRATION VERSUS TIME



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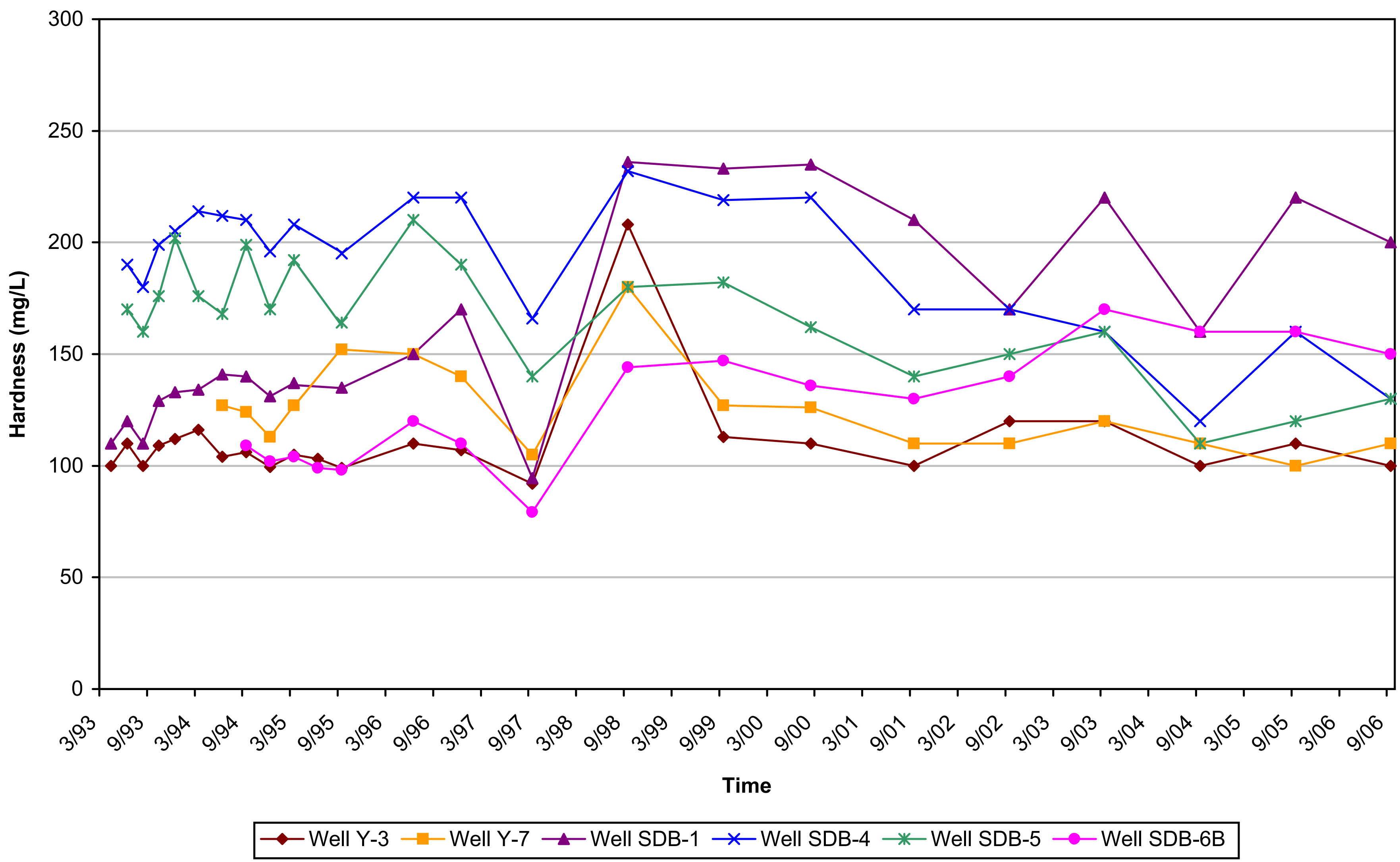
Square D Company
Beaumont, California
FIGURE 6B

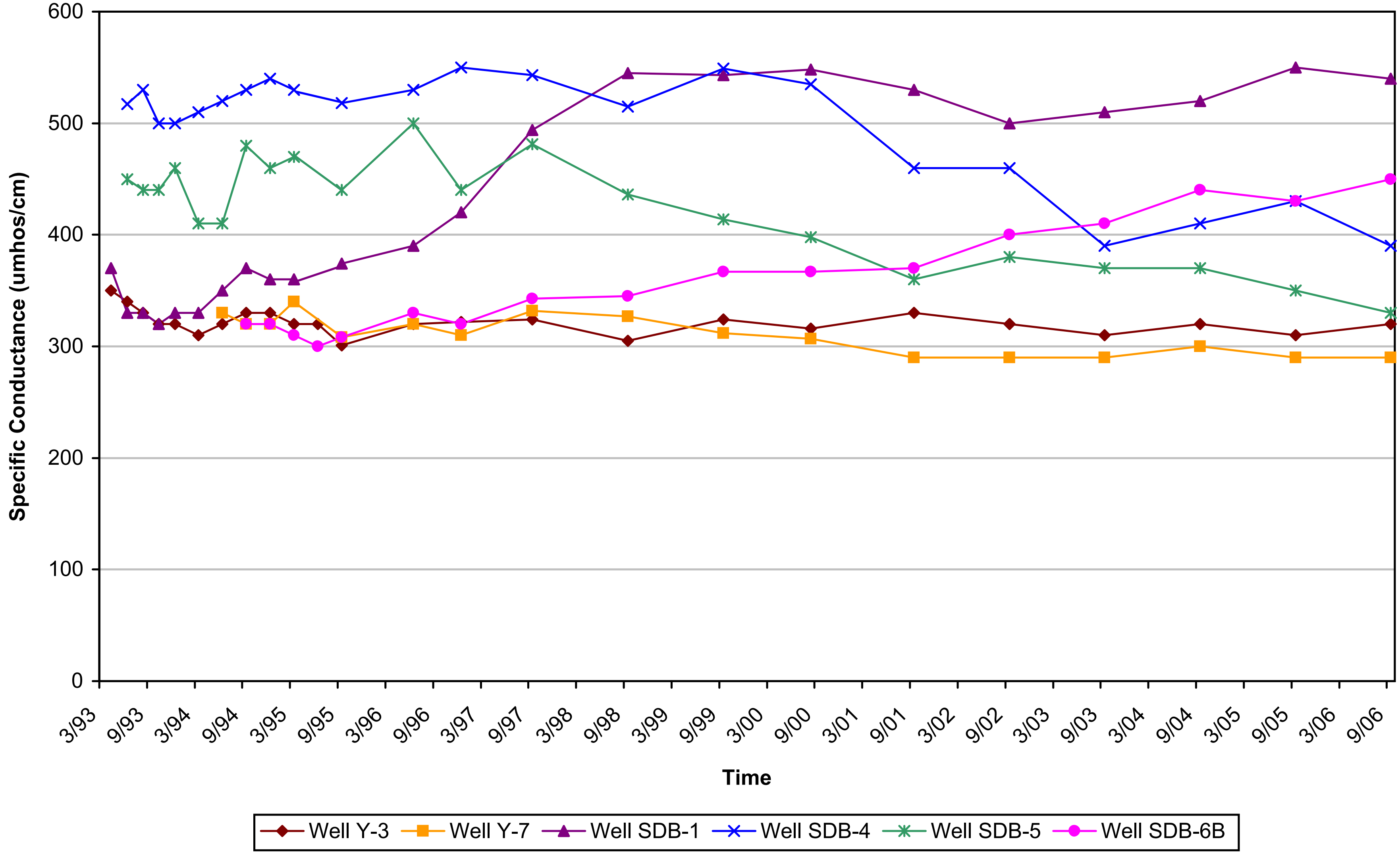
HARDNESS VERSUS TIME



URS

Square D Company
Beaumont, California
FIGURE 6C

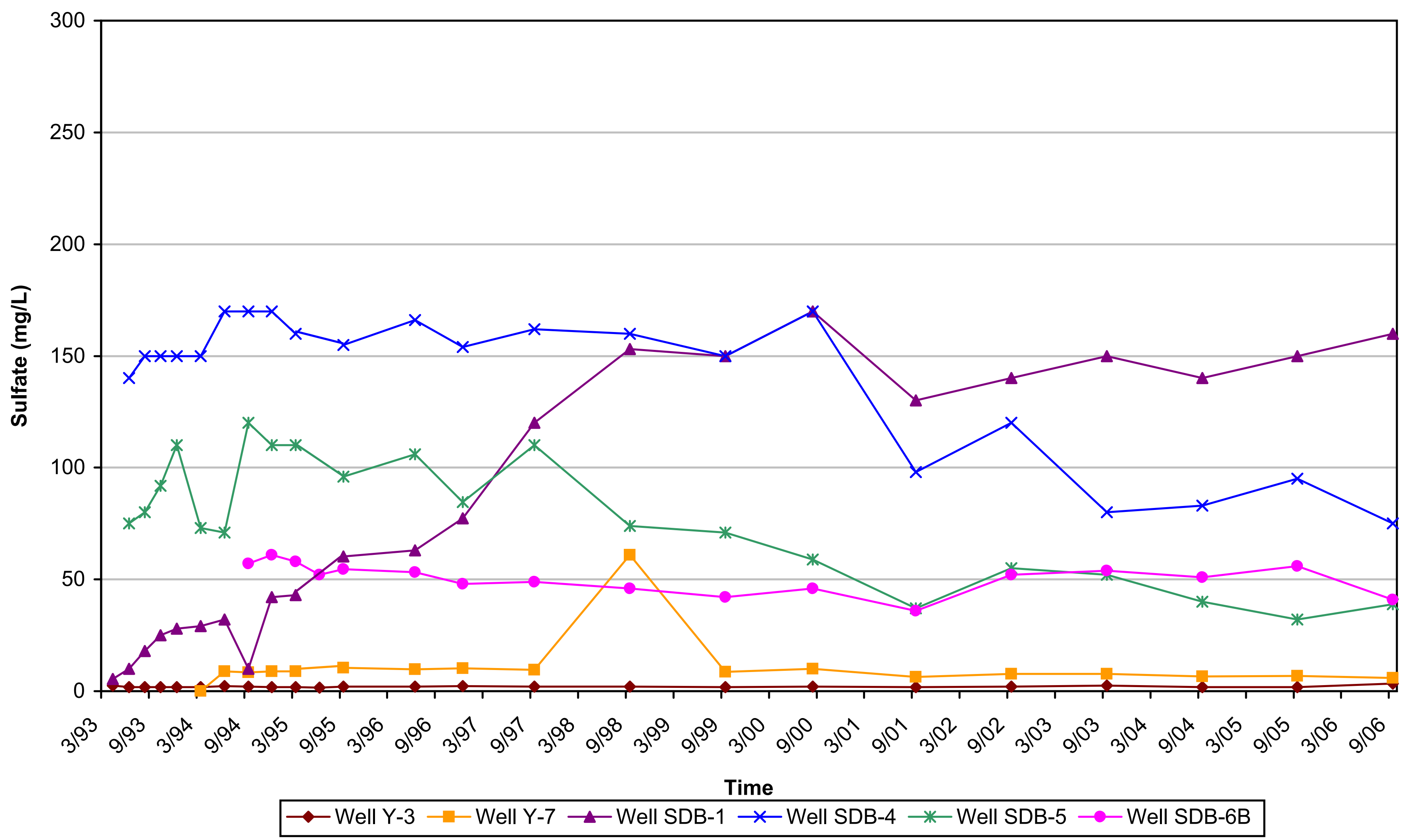
SPECIFIC CONDUCTANCE VERSUS TIME



URS

Square D Company
Beaumont, California
FIGURE 6D

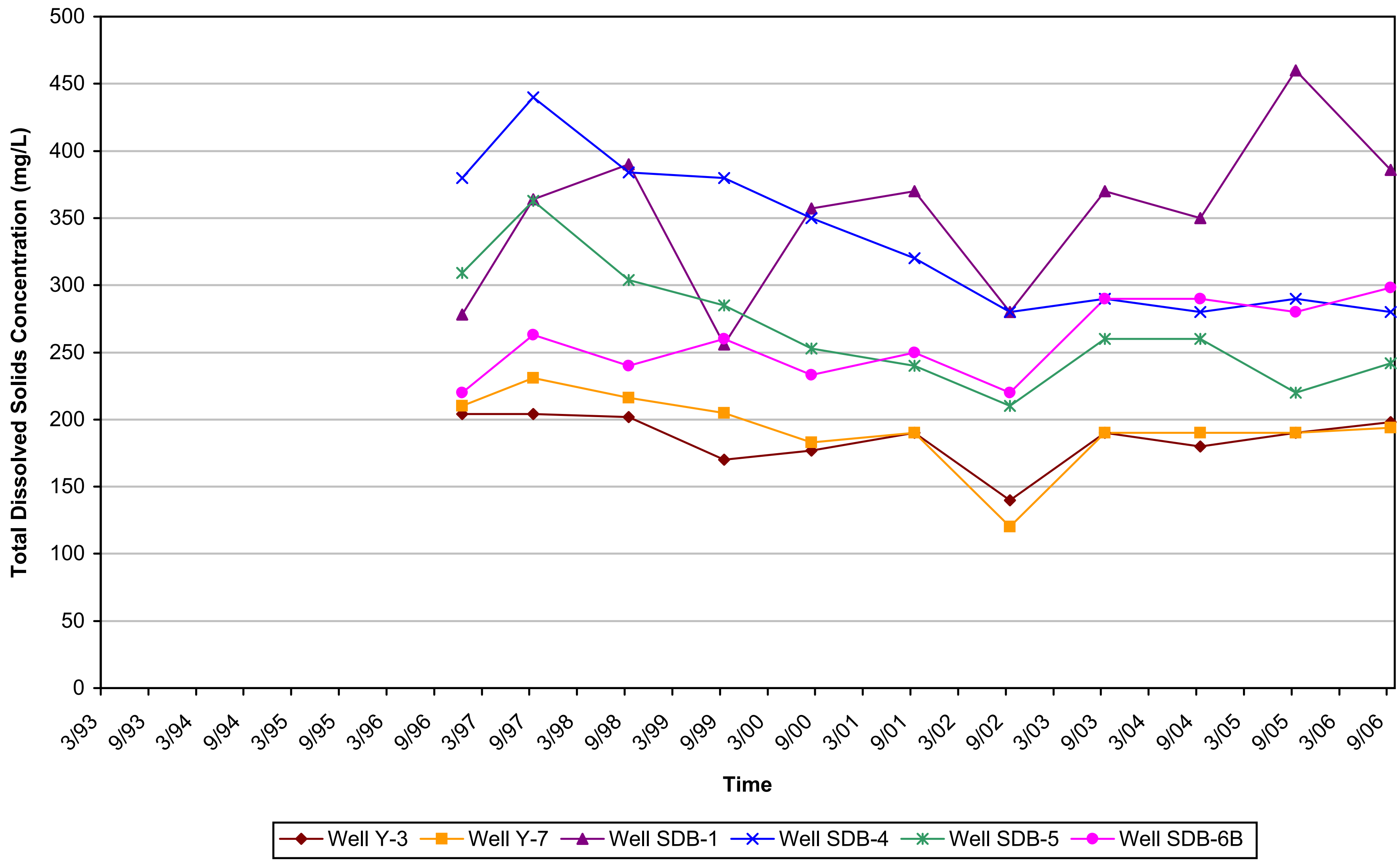
SULFATE VERSUS TIME



Square D Company
Beaumont, California
FIGURE 6E

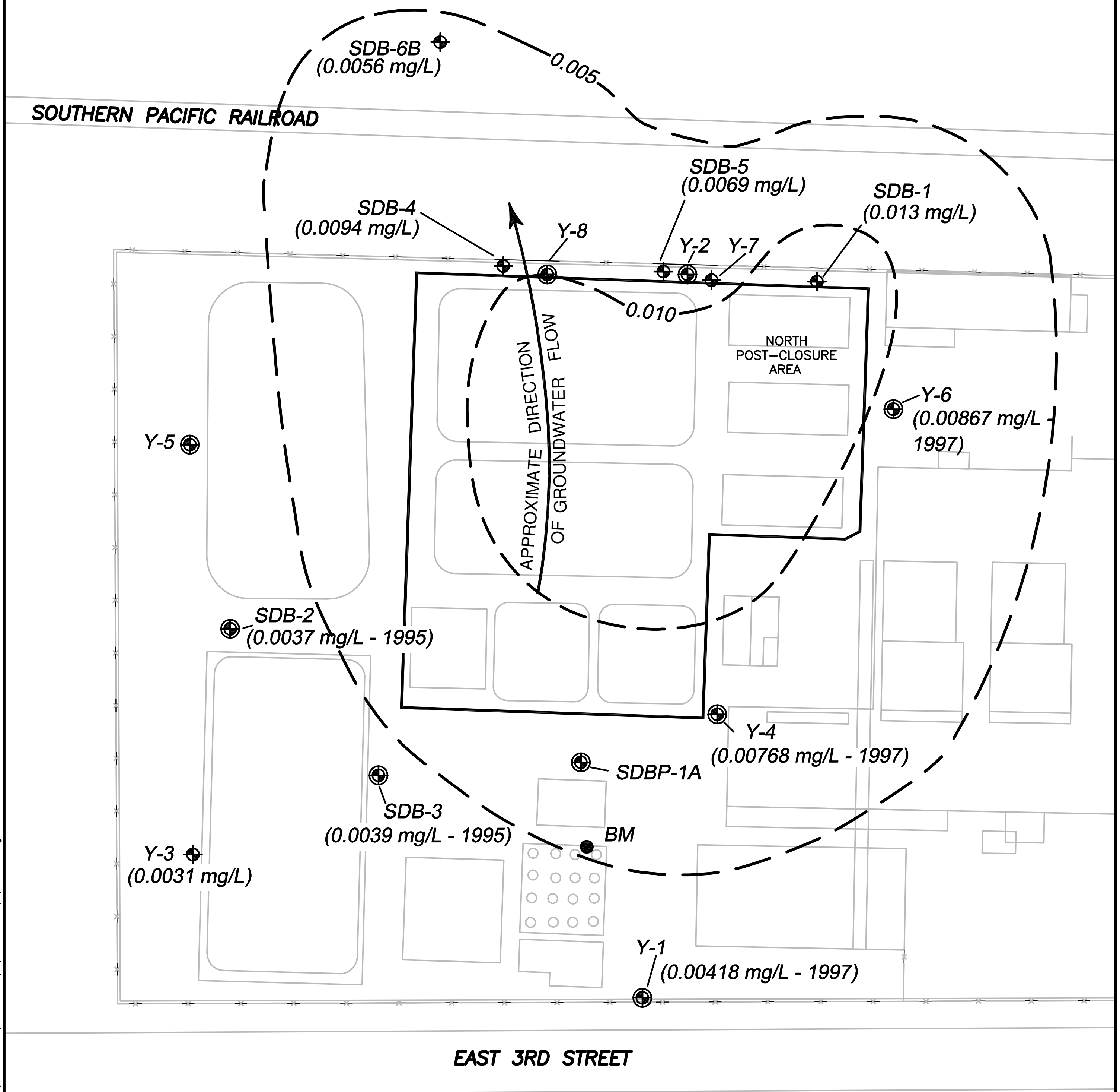
URS

TOTAL DISSOLVED SOLIDS CONCENTRATION VERSUS TIME



URS

Square D Company
Beaumont, California
FIGURE 6F



HEXAVALENT CHROMIUM ISOCONCENTRATION MAP
SEPTEMBER 2006

SQUARE D COMPANY
1060 EAST 3RD STREET
BEAUMONT, CALIFORNIA
For Square D Company

EXPLANATION:

CURRENT GROUNDWATER MONITORING SYSTEM WELL

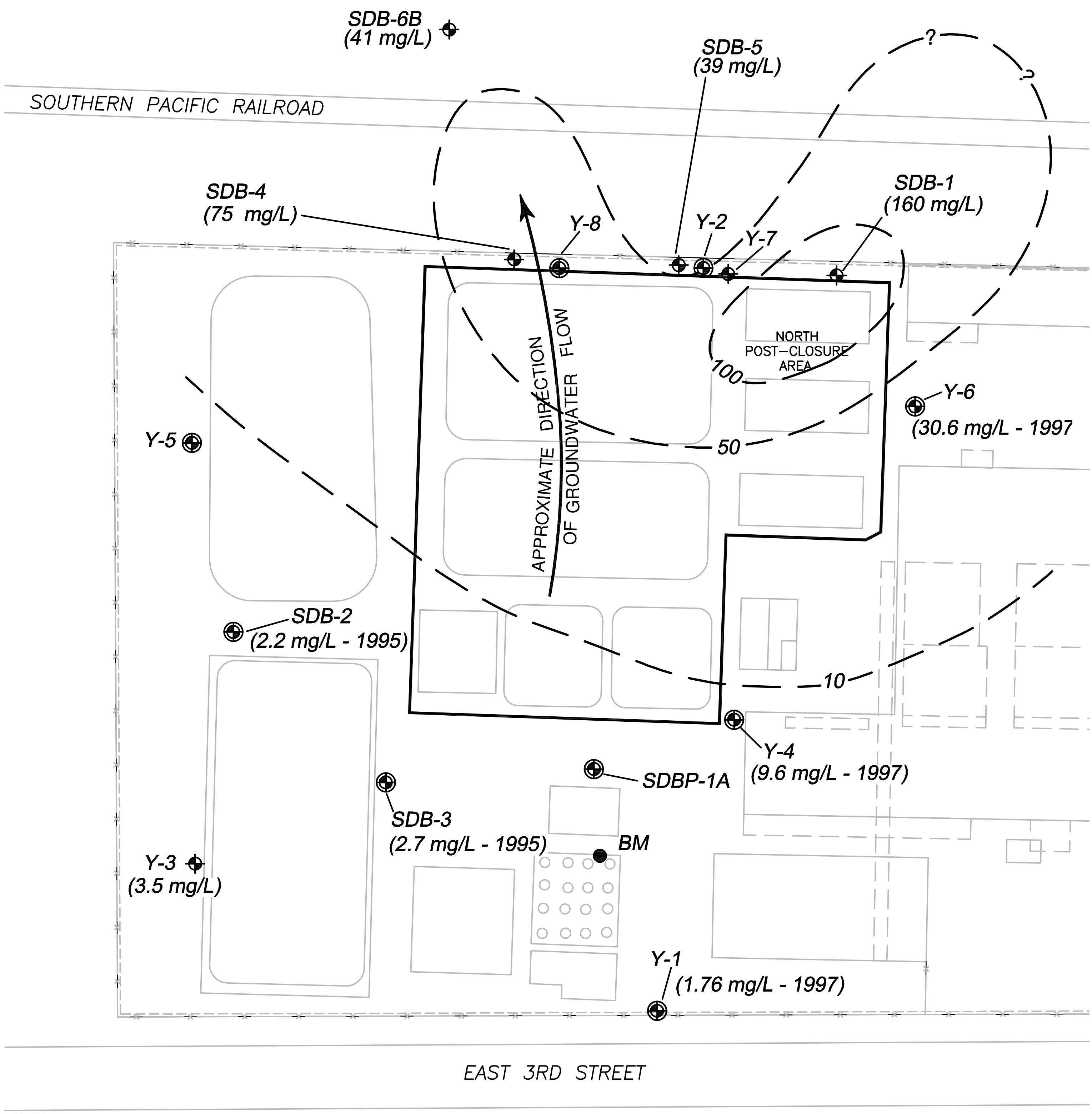
PIEZOMETER (OR MONITORING WELL) FOR GROUNDWATER ELEVATIONS ONLY

LINE OF EQUAL HEXAVALENT CHROMIUM CONCENTRATION IN GROUNDWATER (mg/L)

0 50 100
SCALE IN FEET

URS

FIGURE 7A



SULFATE ISOCONCENTRATION MAP
SEPTEMBER 2006

SQUARE D COMPANY
1060 EAST 3RD STREET
BEAUMONT, CALIFORNIA
For Square D Company

EXPLANATION:

CURRENT GROUNDWATER MONITORING SYSTEM WELL

PIEZOMETER (OR MONITORING WELL) FOR GROUNDWATER ELEVATIONS ONLY

LINE OF EQUAL SULFATE CONCENTRATION IN GROUNDWATER (mg/L)

0 50 100
SCALE IN FEET

URS

FIGURE 7B

9864170.07 - Square D Company\September 2006\figure 7b.dwg, File date: 2/22/2007 3:48 PM, Print date: 2/22/2007 3:48 PM, by: Gabriel Negrete